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CRIPPLING FROM ACCIDENTS*

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In children there are four major conditions due to accidents which may result in permanent disabilities:

1. Fractures.
2. Infections.
3. Nerve Injuries.
4. Burns.

Fractures in children are very common and usually do not result in permanent deformity. They may be classed as those occurring first, in the shaft of the long bones and, second, those fractures which involve the important joints. Favorable results may be expected in fractures of the shaft of the long bones in the great majority of cases because nature is so kind repairing this type of bone injury. But, unfortunately, a small percent of them result in some degree of permanent disability. Of all long bone fractures, those about six inches below the hip tend to be our most serious; they end in deformity and shortening of the leg to the extent of serious disability.

In order to prevent shortening and bowing of the long bones of the leg, it is necessary to use some type of traction. This is usually in the form of a weight attached to the leg in such a way as to maintain a continuous pull, thereby overcoming the muscle contractions and holding the bones in an end-to-end position. For the past few years the Kirschner wire technique used in conjunction with the Braun frame, has been found in our clinic to serve as the best means of applying a weight to long bone fractures. By using an extension hand drill, a fine steel wire is passed thru the lower end of the long bone just above the joint. A Kirschner steel bow is screwed down to each end of the wire and a sash cord is used as a connection between the bow and the weight. Prior to the introduction of this newer method, adhesive plaster had been used for many years. It is still the method of choice where fractures are treated by men who treat them only occasionally, as the equipment necessary in the up-to-date fracture clinic is too complicated and too expensive for the average general practitioner.

In smaller communities the best method is simply to apply adhesive plaster to the leg to which, by means of a cord, a weight, usually a small sack of sand, or window weights are attached. This method, known as Buck's extension, is very successful in the majority of cases, but there is always a percentage of bad results such as overriding of the fragments with shortening of the bone, or union of the fragments with a bowing of the leg. In either case, there is marked deformity and resulting disability. Because of the end-results being very doubtful in fractures of the long bones of the leg, in our State the general practitioners refer a great many of them to the Crippled Children's Hospital at the time injured, where the necessary equipment and specialized training of the surgeon, together, are able to successfully treat these cases and have very few poor results. However, the length of time following the accident has considerable to do with the successful treatment. For example, a fracture of the shaft of the femur, if treated within a few hours after

*Read before the thirteenth annual convention of The International Society for Crippled Children, held at Montreal, Canada, May 20-26, 1934.

the accident, responds much more favorably to treatment than one in which the case is sent in two or three weeks later with overriding of the fragments and an increasing shortening of the leg.

Fractures in the shaft of the long bones of the arm are not so difficult for the average practitioner to treat and, in case the result is one of slight deformity or slight shortening, the disability is not nearly so great as in the leg.

Fractures involving the important joints are more serious as a rule than fractures of the shaft of the bones. The chief reason for their being serious is the fact that fractures of the joints, especially the elbow, knee and the ankle, should be reduced within a few hours after the accident. In case the child is a great distance from proper medical aid, by the time the patient reaches the proper hospital, the joint is so swollen that a proper replacement of the fragments is impossible. As a result, it is necessary to wait several days and at the end of that time the fragments have become fixed more or less. Any attempt to replace them has met with marked resistance because of muscle contraction, and operations on fractures of the joints may be unsatisfactory because considerable damage is done to the ligaments, tendons, and blood supply, in mechanical procedure of replacing the bone fragments. Operation is oftentimes impossible because of skin wounds which are always potential sites of infection until well healed.

Therefore, proper early treatment should consist of first, the taking of a good x-ray in all questionable joint injuries; second, the immediate reduction of the fractures; and, third, an x-ray should always be taken following the emergency treatment and be repeated in those cases in which it is deemed necessary.

Deformities of long standing in children, due to fractures, are usually favorable types for correction. In those cases of the leg in which there is loss of proper alignment of the bone without shortening, a simple instrumental refracture is sufficient for a normal weight-bearing line. Older children often are referred to the orthopedic clinic because of a marked bowleg or knock-knee. A simple operation is sufficient to completely correct the deformity. However, if there is shortening of the leg, a more serious operation known as "leg lengthening" is done.

Occasionally, bone graft operations are necessary because of the bone fragments failing to unite. In the past, metal plates, screws, and wires have been used to hold the ends of the bones in proper position, but, unfortunately, it has been our experience to find that a great many of these cases end in non-union of the bone. Bone grafts, providing the hospital and staff are equipped for this kind of work, are much more successful and no more hazardous.

Infections result in very serious deformities due usually to interference with normal function of joints and muscles. Fortunately, serious infections are much rarer than fractures. The most common causes for serious infections are:

1. Gunshot wounds.

2. Puncture wounds in the joints, such as resulting from children playing with scissors or knives and sticking them into the wrist, hand, knee, or foot.

3. Serious automobile accidents in which there may be compound fractures associated with severe wounds of the skin and soft parts.

In order to be successful, the treatment of infections must be instituted immediately in the form of hot packs, splinting for local rest to the affected member, and the giving of proper stimulants to assist the body resistance. In case abscesses develop, immediate thorough drainage should be done. After the wounds have healed, artificial heat, massage and careful exercises should be carried out. In orthopedic centers this work is done on a large scale and is known as physical therapy. Stiff joints in children respond most satisfactorily to this treatment.

During the hunting season there is always a few serious gunshot wounds in older boys. These cases should be treated systematically, the first thought always being to save the life of the patient, the second to save the limb and, in case there is the usual shattered bone, an effort should be made to treat the extremity in such a way as to obtain bony union with as little shortening as possible. If there is joint involvement, some limitation of motion of this particular joint is always expected. In a high percentage of gunshot cases of the extremities, especially shotgun injury, it

is impossible to save the foot or the hand. It is to the advantage of the patient for the surgeon to make an early decision because a satisfactory stump for the fitting of an artificial limb is very important. In other words, if the forepart of the foot has been shattered by a shotgun, it is best to do the amputation immediately before infection sets in; otherwise the amputation might have to be done much higher with a great increase in the resulting disability. The amputation should be done high enough to obtain healing of the soft parts without infection, as an infected stump always results in dense adherent scars which are quite tender and do not stand the pressure of an artificial limb comfortably.

Puncture wounds into joints are always serious because of the danger of infection which destroys the smooth joint surfaces and ends in the joint being stiff. Puncture wounds into the palm of the hand or the sole of the foot may cause infections which bring about abscess formation due to destruction of the tendon structures. The smooth surfaces of the tendons and the tendon coverings lose their smooth gliding function and become fixed in one great dense scar, thereby interfering greatly with the use of the fingers or the toes.

Nerve injuries are always very serious because every main nerve trunk has a distinct function to perform in controlling muscle action. For example, nerve trunks are most often injured in automobile accidents in which the arm or the leg has been cut by windshield or other glass. In injuries of the upper arm, the radial nerve is often severed and if it is not properly united, the patient will have a wrist drop which means that he cannot raise the hand. Or, in case of a severe injury to the knee joint, the peroneal nerve may be divided; the patient cannot raise the foot, and in attempting to walk with this type of partial paralysis, there is a most decided limp in addition to the marked weakness of the lower leg and foot. Therefore, the patient should always be examined carefully at the time of the accident for nerve injuries and immediate surgical repair should be done whenever possible.

Burns are a serious result of accidents. As a rule, they are classified under the heading of plastic surgery and the more serious burns about the neck and face have to do with disfigurement rather than disability. But, burns are of interest to the orthopedic surgeon because heavy burn scars tend to contract upon healing, thereby causing in some cases complete loss of motion of certain joints such as the shoulder, elbow and knee. While the treatment usually is one requiring skin grafting, appliances similar to the ones used in orthopedic surgery should be used to prevent recurrence of the old fixed position.

The principle of the correction of a fixed flexion contraction of the knee, aside from the plastic work, is just the same in case of a burn as it is in the case of a tuberculosis of the knee itself. Physical therapy is just as important in the restitution of normal joint motion. Therefore, in the treatment of acute burns of the extremities, prevention of the deformity is just as important as the proper healing of the skin itself. Contraction about the wrist with the inability to straighten the wrist or straighten the fingers due to contracted burn scars constitutes a disability so severe that technical use of the hand is lost. In these cases of hand deformities, after the releasing of the scars and the implantation of skin grafts, physical therapy treatment is most necessary to gain return of function relative to the tendons and joints of the fingers.

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R. B. DAVIS CO. COCOMALT

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NEPHROSIS IN CHILDREN

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Nephrosis or parenchymatous nephrosis is a disease of parenchymatous organs of the whole body, characterized by marked oedema, profuse albuminuria with a corresponding decrease in the serum proteins and an elevation of the blood lipoids. The nephroses fall into two main groups: (1) primary or Epstein's "lipoid" nephrosis, and (2) secondary nephrosis.

The pathology of this process involves every tissue and organ of the body. In the kidney the changes in the tubules vary in intensity from cloudy swelling to necrosis of the cells with the replacement of scar tissue. There is a salt retention by the issues with a low blood and urine concentration of salt. The blood cholesterol is increased five times that of normal and the lipemia may be of sufficient degree to be detectable in the eyegrounds. The peritoneal, pleural, and pericardial cavities are often filled with ascitic fluid which makes an ideal culture medium for the bacteria which terminates the patient's life.

The oncotic or "colloidal osmotic pressure" of the blood is greatly decreased and proportionately is the permeability of the kidney capillaries for protein increased. Leiter removed the plasma from the blood of dogs, reinjecting the erythrocytes in Lock's solution. On frequent repetition of this procedure the content of the blood is diminished, especially the albumen. Edema develops, and later albuminuria, granular casts and fat droplets are found in the urine, and in sections degeneration of the renal tubules is seen.

Generally there is a lowering of the basal metabolism but this is due to the fact that the water logged cells of the thyroid cannot function properly, rather than that the hypothyroidism is responsible for this condition.

ETIOLOGY

In a disease with such a pathological background one would think of some potent toxic agent as the cause. The views of Marriot and Clansen that nephrosis is a general systemic intoxication is shared by Wolbach and Blackfan. Chilling or a sudden cold may precipitate this condition. The direct cause is a toxin of bacterial origin generally produced by the staphlococcus and influenza bacillus. That the nasal sinuses are the foci of infection of first rank is proved by the fact that treatment and drainage of these sinuses often removes the edema and stops the albuminuria and that these symptoms return upon reinfection of the sinuses.

Nephrosis has been known to follow a series of boils and I had one case in which improvement was immediate following the opening of both eardrums. The disease establishes a vicious circle. Oedema increases with infection and lowers the resistance of the patient, making conditions favorable for more extensive infection, till a fatal streptococcus or pneumococcus invades the ascitic fluid.

It is believed by some that a toxic, acid, alcohol soluble substance found in the blood and urine of these patients is the direct cause of the albuminuria.

SYMPTOMS

Following a chilling, a severe head cold or mild attack of influenza there is an insidious onset. There is more or less pallor of the skin depending largely upon the degree of the edema. In some cases the skin appears mottled and is cold to the touch. The temperature may be subnormal due to decreased basal metabolism. In the course of a few days to a week the eyelids become puffed and the loose skin about the genetalia becomes greatly distended with fluid.

In one case the mother brought the boy in because of the intense swelling of the scrotum. This was the first intimation she had that something was wrong with the child. The scrotal edema is a good index of how the case is progressing, as it persists after the serous cavity and tissues clear up. Ascites is always present; pleural effusion is less frequent; and pericardial effusion least frequent.

There is a general agreement that ure-

mia does not occur in nephrosis. The severe attacks of headache, vomiting, cyanosis, convulsive seizures, and stupor which may occur repeatedly are due to edema of the brain. There is no increase in blood pressure, as is seen in Bright's disease in adults; nor is there a leucocytosis. After the disease has persisted for some time, a secondary anemia may develop, which may necessitate a transfusion. The chemical and physical changes of the blood are marked. The hypo-albuminosis which occurs in other forms of nephritis reaches its lowest value here. Epstein and others have found that when the plasma protein falls below 5%, edema occurs. The normal is 7%. In nephrosis it may fall as low as 3%; and the less the percentage of blood protein the greater the edema. The N. P. N. of the blood is usually normal, as are the blood sugar values. The lipoids are greatly increased, and the cholesterol may be five or six times normal. The surface tension of the cells is decreased, and oncotic or colloidial osmotic pressure of the plasma is reduced. The urine is scanty and highly colored. The specific gravity is high and the amount voided a day may drop to as low as 100 c. c. There is a great amount of serum albumin and a low concentration of nacl in the urine, and when diureses sets in the albumin decreases and the salt concentration increases proportionately. Casts of many descriptions are found; granular, hyaline, fatty and casts encurusted with epithelial cells or leukocytes in various stages of disintegration. In this disease the phenolsulphonephthalein excretion is good.

PROGNOSIS

The prognosis for any form of nephrosis is not good. In the primary and early secondary types about 70% are reported by Davis to recover, while the late secondary types Wescott and Dennett report fourteen deaths out of fifteen cases. In other words the earlier the disease is treated, the better the prognosis.

TREATMENT

The first consideration should be given to removing any foci of infection which may be found. Nasal irrigations followed by ephedrin instillations often help to promote drainage. These patients do not tolerate surgery well, but the sinuses may be drained under nitrous oxide anesthesia. The elimination of focal infection has a twofold importance. First, it eliminates what is generally believed to be the cause of the disease, and, secondly, it removes the bacterial harbor which may later cause a fatal peritonitis. The transfusion of whole blood has many advocates. It combats the anemia which is always present, builds up resistance, and, perhaps most of all, helps to restore the oncotic pressure of the plasma so as to cause a migration of the fluids from the tissues into the capillaries. Hartmann and others have promoted marked diuresis by increasing the colloidal osmosis by injecting acacia intravenously.

The next question is what shall we do about the water intake. Marriot has found that these patients do equally as well with enough water to make them comfortable as they do when denied water to the point of thirst. In all cases the salt in the diet should be restricted. I have given to one case E. K. A. (Sharpe and Dohme) and the patient did not miss the nacl. Since there is an enormous loss of albumin from the blood through the urine, a high protein diet is indicated. I feel that next to clearing up the primary infection that this is the most important procedure. Two grams of protein per kilo of body weight should be given daily. These children will take this protein in milk, egg, ice cream and custards readily.

Epstein accounts for its diuretic action through the replacement of the serum proteins and stimulation of metabolism. Cod liver or haliver oil are beneficial in helping to increase resistance to infection. The leafy vegetables should be given liberally on account of their iron content.

As to drugs, the purine diuretics may be used in the absence of fever and haematuria. Diuretin gr. 5 four times a day is useful. I have given thyroid extract as high as gr. lx per day without noting any untoward effects. Filliji thinks that insulin is indicated in any hypercholesteremia not physiologic in origin. Its beneficial action is very doubtful.

Helmholz believes that certain salts which render the urine acid, such as calcium chloride, ammonium sulphate and ammonium nitrate have a very beneficial effect upon stimulating diureses. He gives as much as 5 grams (75 grains) per day, in addition he combines the use of the mercurial diuretics merbaphen and salyrgan. It is supplied in. 1 gm in 1 c. c. ampoules and may be given intramuscularly

or intravenously twice weekly, starting with .2 cc. and gradually increasing to 1 cc. The patient should be watched for the appearance of a bloody diarrhea.

In closing, we should remember that we have a patient who will be ill for some time and it should be our aim to keep this little patient on a diet of sufficient caloric value to sustain his growth and energy requirements during his disease.

THE TREATMENT OF CRANIO-CEREBRAL INJURIES*

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Fractures of the skull are unique among the fractures of other bones of the body in that fracture of the skull is relatively unimportant. Injury to the brain should receive primary consideration. This trite statement has been made very often and under many disguises, but cannot be over-emphasized. It is only of academic interest to classify or describe the various fractures of the vault or base. It is impractical and of little help clinically to group symptoms in order that one may speak of the syndrome of "concussion" or "contusion." Such classifications lead the inexperienced to institute a set regime of therapy and do not emphasize the fact that each case of skull injury is an individual problem to be treated, if necessary, by a combination of methods. There should be no advocacy of one method of therapy in skull injuries. With the full realization that there can be no hard and fast division of the clinical symptoms which accompany skull injuries, it does become necessary for descriptive purposes to point out certain clinical symptoms which are encountered most commonly.

The most simple type of skull injury encountered is that in which the patient has received a blow upon the head, either by a fall or by being struck by a moving object. The period of loss of consciousness, which immediately ensues, may last from a few minutes to several hours. There may or may not be a laceration of the scalp, and a linear fracture of the vault of the skull may or may not be present. In any event, the period of loss of consciousness is an indication of the severity of the cerebral trauma, provided that a careful neurological examination has failed to reveal a disturbance of motor function or other symptoms attributable to direct cortical damage.

In a second group of cases, in which the etiological factors may have been exactly the same, loss of consciousness may be accompanied by bleeding and a discharge of cerebrospinal fluid from the ears or nose. Conjunctival and periorbital hemorrhages may be present. Blood may not escape from the ear and yet the tympanic membrane may be bluish-red and bulging from a hemorrhage which has not perforated through the drum. It may be concluded that under such circumstances blood has found its way into the subarachnoid spaces. Contusion and laceration of the inferior surfaces of the frontal or temporal lobes, or a basilar fracture of the skull are present commonly in this group of cases. Damage to the cerebral cortex in these locations may not be accompanied by evidences of motor or sensory dysfunction as is the case in injury to the brain over the convexities of the surface. As a result of the blood in the subarachnoid spaces, the patient may be extremely restless and difficult to control. In addition, there is always a variable degree of rigidity of the neck which is indicative of meningeal irritation. One or more of the cranial nerves may be damaged in these more severe injuries. Not uncommonly the third, fourth and sixth cranial nerves which innervate the extraocular muscles and the facial and acoustic nerves may be damaged directly or become compressed by the formation of a hematoma.

In the third group of patients, depression of the fractured fragments of the skull may be present. The inner or outer table alone may be depressed, or there

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may be a complete solution of continuity so that both tables rest upon the underlying brain. Depressed fractures of the skull may be present with or without a laceration of the scalp. In severe crushing injuries, the scalp may be lacerated severely and the skull fracture may not only be comminuted but some of the fragments may be driven into the brain. In such instances there are tears in the dura mater and destruction of brain tissue, which may be so pulpified as to escape from the wound.

In contradistinction to those clinical symptoms just described in which coma immediately follows the injury, are those cases in which coma appears some time after the injury. There may be a short period of loss of consciousness, followed by a lucid interval with the onset of a second period of loss of consciousness. Or, the patient may have had no loss of consciousness immediately after the injury and then later gradually becomes comatose. This group of symptoms will be recognized as those characteristic of the classical picture of hemorrhage from the middle meningeal artery. Many descriptions have been given of the combination of symptoms involving the pulse, blood pressure and respirations under such circumstances. However, the most pathognomonic sign of middle meningeal hemorrhage is dilatation of the pupil upon the side of the hemorrhage. It should be remembered that bleeding from the middle meningeal artery may occur on the side opposite to that of the skull injury. The importance of this index of increasing cerebral compression which is localized cannot be insisted upon too strongly. If the bleeding occurs slowly, and it is always extradural in these cases, the ensuing coma is slow in developing so that early the patient may be only stuporous. Under such circumstances, careful neurological examination will reveal a weakness of the muscles of the face and arm certainly, and possibly the leg. To request a patient who is stuporous to grasp or to perform gross voluntary movements which require considerable effort is not an accurate method of determining slight differences in muscle strength. One should observe the facial muscles in emotional expressions; the differences in the size of the palpebral fissures, or the tendency of the weak upper extremity to fall away as both extremities are held outstretched. It is such slight but definite evidences of motor weakness which corroborate the surmise of an increasing lesion over the opposite side of the cerebral cortex.

Even though the patient loses consciousness rapidly and cannot cooperate in the examination, one may, by careful observation, detect a difference in the tone of the muscles upon the two sides of the body. The upper eyelids may be raised passively and allowed to fall. On the affected side the eyelid may cover the eyeball slowly or not at all, while on the normal side it quickly returns to its original position. Likewise, the arm may be raised over the face or chest of the patient and allowed to fall. Though the patient may not voluntarily move either extremity, the difference in muscle tone may be observed quite readily as the normal arm avoids the face in its descent. Passive flexion of the lower extremities followed by sudden release is a valuable method of eliciting a difference in muscle tone in the legs. The paretic limb falls quickly and in an abducted position; whereas, the normal limb gradually slides into its original position.

Hemorrhage beneath the dura in an amount sufficient to produce symptoms may occur relatively soon after a skull injury, or many months or years may elapse before the gradually developing hematoma produces symptoms. Subdural hematomas are not uncommon and yet, because of the gradual onset of symptoms they are not easily diagnosed. The same methods for the detection of slight differences in muscle tone on the two sides of the body may be utilized in these cases to great advantage. Many cases of chronic subdural hematomas are upon record which have produced symptoms years after a supposedly trifling skull injury. Many times these symptoms have been attributed wrongly to intracranial tumors or an organic psychosis.

Finally, several complications may follow skull injuries which add to the gravity of the patient's prognosis. Every patient who has a discharge of cerebrospinal fluid from the ears or nose is potentially a patient in whom a suppurative meningitis may develop. An apparently simple linear fracture of the skull in which a laceration of the scalp has occurred may be followed by the development of an intracranial abscess accompanied by neurological symp-

toms dependent in their character upon the location and the chronicity of the infectious process. There are many cases upon record in which air has been found within the cranial cavity, or within the cerebrum, upon x-ray examination of the skull. These cases of pneumocephalus follow fractures through the accessory nasal sinuses which extend into the cranial cavity. They are often associated with a discharge of cerebrospinal fluid from the nose.

It should not be assumed that the changes in the pulse, blood pressure, and respirations which accompany skull injuries are not of importance. However, they fluctuate tremendously in individuals who may have similar types of injuries and what is more important they may vary markedly within short periods of time in the same individual. Therefore, while a careful, frequent record of the pulse, blood pressure, and respirations should be kept their greatest value lies in the evidence they provide of the effects of therapy rather than of the aid they give in establishing a diagnosis. It is not uncommon to be misled by a slow pulse in an individual who normally has a bradycardia.

It is to be emphasized again that each patient cannot be filed in any one category of symptoms. A middle meningeal hemorrhage, or subdural hematoma may develop in an individual who received an apparently minor injury to the skull. On the contrary, one with a compound, comminuted fracture of skull with depression of fragments may never suffer a loss of consciousness. Likewise, a patient with an extensive laceration of the scalp received from a blow of comparatively small force may be in shock from a loss of blood. The important point then is to examine each patient carefully for any evidence of cerebral damage; to be alert to the possible onset of symptoms which point to a latent lesion; to evaluate properly those symptoms which are present and finally, to recognize the principles underlying their treatment and the methods which can be employed effectively to aid in recovery.

Before the treatment of skull injuries can be individualized it is necessary to have a knowledge and understanding of the mechanism of the cerebrospinal fluid system.

The cerebrospinal fluid which is produced largely by the choroid plexuses is poured directly into the lateral cerebral ventricles, which are lined by ependymal cells. That portion of the fluid which is formed by the choroid plexus in the lateral ventricles passes through the foramen of Monro into the third ventricle, and then by way of the acqueduct of Sylvius into the fourth ventricle. From there the fluid passes into the subarachnoid spaces through the two lateral foramina of Luschka and the medial foramen of Magendie. From the dilatation of the subarachnoid space in the midline between the cerebellum and the medulla (cisterna magna) the fluid flows slowly downward into the spinal subarachnoid space. However, at the same time it passes upward more rapidly about the base of the brain where other subarachnoid cisterns are present, and then more slowly over the cerebral hemispheres. This movement of the fluid is facilitated by impulses transmitted to it by the vascular system. According to the present anatomical descriptions, the subarachnoid space in which the fluid circulates is between the arachnoidea and the pia mater. Numerous delicate spider web-like trabeculae project from the arachnoidea to the pia mater. Flat, polygonal mesothelial cells cover the inner surface of the arachnoid, the trabeculae, the surface of the brain and all blood vessels which pass through the subarachnoid space. These mesothelial cells establish a periadventitial fluid channel about each blood vessel which penetrates the nervous system. The subdural space has but a slight relationship to the circulation of cerebrospinal fluid. However, the dura mater and arachnoidea fuse at the points where the arachnoid penetrates the dense fibrous tissue of the dura mater. These are the arachnoid villi, by which the mesothelial cells of the arachnoid come directly beneath the vascular endothelium of the large venous sinuses.

The cerebrospinal fluid then circulates everywhere about the central nervous system; in the ventricles and in the meshes of the subarachnoid space. These channels are lined by special fluid-retaining cells so that a true circulation is maintained. In the arachnoid villi the fluid comes into close relation with the large venous sinuses of the dura mater and it is at this point that absorption occurs. The mechanism of passage of the fluid is

a process of filtration from a point of higher pressure to a point of lower pressure with later experimental evidence to show that the fluid is a dialysate in osmotic and hydrostatic equilibrium with the blood. There is a second method of absorption in which the fluid escapes slowly into the true lymphatic vessels in an indirect manner.

In the presence of trauma to the brain, edema occurs and an actual increase in brain volume follows. Circulation of the cerebrospinal fluid is interfered with, and a rise in cerebrospinal fluid and venous pressure occurs. With the skull and vertebral column as inelastic and rigid containers, the pressure of the cerebrospinal fluid and intracranial vascular pressures have a close relationship. It may be stated that the cerebrospinal fluid pressure varies with the blood pressure but follows more accurately the venous than the arterial pressure. The therapeutic problem is therefore to help re-establish the normal fluid and vascular pressures, and to reduce the increased brain volume brought about by edema.

The treatment of skull fractures may be divided into non-surgical and surgical. By far the larger number of cases fall into the former group, because there are only three indications for surgery in the treatment of skull fractures. These are: (1) middle meningeal hemorrhage; (2) subdural hematomas, and (3) depressed fractures.

NON-SURGICAL THERAPY

The first consideration in the treatment of a patient who has received a skull injury is to combat any shock which may be present as the result of hemorrhage, or from the severity of the trauma. Warmth is the most effective single method in these cases, unless of course bleeding from the scalp or from some other injury has been so severe that it is obvious that a transfusion is required. The recovery from shock, without hemorrhage, which follows a skull injury is usually quite prompt unless the injury is so extensive that death occurs within a short time. This statement indicates that there is a group of skull injuries in which active well-directed treatment is of no avail and death occurs soon after the injury.

When blood or cerebrospinal fluid are escaping from the ears or nose, those cavities should be left alone except for a loosely introduced piece of sterile cotton to absorb the discharge. No irrigating solutions of any kind should be introduced into the aural or nasal cavities because of the danger of infection. Examinations of these cavities should be restricted to the absolute minimum if practiced at all. The adherence to these strict rules is an excellent prophylaxis against a complicating meningitis.

The patient should be placed in a warm bed with the head flat. The use of an icebag upon the top of the head is of little or no value. The use of an ice glove over a swollen, edematous cheek or eye aids materially in its reduction.

It is not necessary to rush the patient to the x-ray room for films of the skull. Though a depressed fracture is palpated, it is more important to get the patient into a warm bed than it is to subject him to the manipulations necessary to obtain skull films. Moreover, satisfactory films can be obtained by a portable apparatus which may be taken to the bedside. Even under such circumstances the patient's head should not be forced into unusual positions or roughly handled. When the patient has recovered consciousness and is on the mend, carefully taken lateral, antero-posterior and postero-anterior films may be made. The latter often disclose fractures which cannot be visualized in the lateral position.

The second step to be taken is to reduce edema, brain volume and intracranial pressure. There are two methods employed commonly to bring about these results: (1) the administration of hypertonic solutions, and (2) spinal punctures.

HYPERTONIC SOLUTIONS

In 1919, Weed and McKibben[1] reported that cerebrospinal fluid pressure could be markedly altered by the intravenous injections of solutions of various concentrations. They showed that the intravenous injection of strongly hypertonic solutions lowered the cerebrospinal fluid pressure to such a degree that often negative readings were recorded. With hypotonic solutions (distilled water) a prolonged rise in fluid pressure occurred. Accompanying these changes in the fluid pressure, Weed and McKibben[2] found marked alterations in the volume of the brain, so that the hypertonic solutions produced a small shrunken brain.

These findings have been confirmed

many times both in the laboratory and clinically, so that clinical applications of these phenomena have been developed. Cushing and Foley[3] showed that the ingestion of hypertonic solutions reduced cerebrospinal fluid pressure and Foley and Putnam[4] administered hypertonic solutions intra-intestinally with similar results. Many neurological surgeons have observed the decrease in brain volume at the operating table after the administration of intravenous hypertonic solutions. Weed and Hughson[5] extended the original observations somewhat in addition to confirming the effects of hypertonic solutions and showed that the cerebrospinal fluid pressure became profoundly lowered, while the sagittal and brachial venous pressures remained about the same. It is, therefore, possible to reduce cerebrospinal fluid pressure without greatly affecting the systemic blood pressure. These changes in the cerebrospinal fluid, effected by hypertonic solutions, have their explanation in the alteration of the osmotic pressure of the blood. The increase in the pressure of the cerebrospinal fluid and in the brain volume may be taken to mean a passage of fluid from blood vessel to tissue. The fall of cerebrospinal fluid pressure and brain volume after the injection of hypertonic solutions points to the attraction of water from the body tissues and possibly from the body fluids.

It was natural that these physiological findings be developed for clinical use. It was found early that hypertonic saline solution was dangerous because of its effect upon the kidneys among other organs. Fifty per cent glucose solution was substituted for intravenous injection. For adults in coma, 100 ccs. of 50% solution should be given intravenously every twelve hours until the patient becomes co-operative. It may then be given as the patient's condition warrants. It should be given slowly and as long as thirty to forty minutes should elapse for the injection of 100 ccs. For children the dosage should not be over 50 ccs. of the same solution and this may be reduced according to the age of the patient. Clinical experience indicates that the same results cannot be obtained by giving 200 ccs. of 25% solution instead of 100 ccs. of 50% solution.

Magnesium sulphate in a saturated solution may be used by a Murphy drip intra-rectal administration. One hundred fifty ccs. every three to four hours may be given to an adult. In spite of a slow administration, the rectal mucosa soon becomes irritated and the patient begins to expel the solution. If oral administration can be used the solution may be given once every twenty-four hours in a five or six ounce dose. If this is impossible, because of coma, a stomach tube should be passed and hypertonic solutions administered in that manner.

At the same time the intake of fluids should be restricted to that amount which will avoid the equally dangerous results of dehydration. The administration of fluids can and should include liquid foods so that the patient in coma is not allowed to go without food sufficient to maintain his nutrition in a resting state. If necessary these should be given by a stomach tube and a solution of cream, eggs and sugar which contains one calorie for each cubic centimeter of fluid has been found to be very efficient. An adult may be given 600 ccs. of this mixture three times daily. This is not enough at any one feeding to be regurgitated and at the same time furnishes an adequate number of calories.

LUMBAR PUNCTURE

A lumbar spinal puncture may be a valuable aid in the treatment of skull injuries, or at the same time it may be most dangerous.

Blood in the subarachnoid spaces is a source of meningeal irritation, the prominent symptoms of which are restlessness and rigidity of the neck. Both of these symptoms vary with the amount of blood present. Extensive basilar injuries with a large amount of blood in the basilar arachnoid cisterns may produce a clinical condition which simulates experimental decerebrate rigidity.

Unfortunately, it has become a common practice to perform lumbar punctures as a matter of routine to determine the presence or absence of blood in the cerebrospinal fluid. Careful examination of the patient, particularly if there is an escape of blood and fluid from the ears, makes a lumbar puncture for diagnostic purposes unnecessary.

It is in these patients with blood in the subarachnoid spaces that lumbar puncture has its greatest usefulness. An accurate manometric reading should be made of the initial pressure. Removal of the fluid should be done under constant manomet-

ric control, so that the cerebrospinal fluid pressure may not be reduced far beyond the normal, which varies between 180 and 200 mms. of water pressure. The removal of bloody fluid from a patient who is restless and difficult to control produces striking results. This should be repeated at intervals of eight to thirteen hours or less, depending upon the patient's symptoms. It will be found that the fluid becomes less bloody, then xanthochromic and finally clear as the symptoms disappear.

Lumbar punctures are often employed repeatedly to maintain reduced cerebrospinal fluid pressure. While this may be accomplished for a short period, the pressure does not remain lowered. It must be remembered, too, that in addition to an increase of pressure there exists an increase in brain volume and it has been proven that hypertonic solutions reduce both brain bulk and cerebrospinal fluid pressure.

Finally, lumbar punctures done without manometric control and in which there is a sudden reduction of pressure at the lowest point in the spinal fluid system are dangerous. Minute hemorrhages in the brain stem and sudden collapse of the cerebellar tonsils into the foramen magnum may occur with a fatal termination. Especially are these circumstances likely to occur in children. The physiological reduction of pressure by hypertonic solutions is certainly more efficient and less dangerous than the mechanical reduction by spinal puncture.

NURSING CARE AND DRUGS

Patients with skull injuries must be nursed carefully. Many times the patient is restless only because of a distended urinary bladder, or because of bed clothing which has been wet by an involuntary urination. There is perhaps no other one group of patients who generally receive so little careful, detailed nursing attention as the skull injuries, particularly in large charitable institutions. Good nursing, with the judicious use of restraints, will make unnecessary the commonly employed narcotic drugs.

Morphine should be absolutely contraindicated in every case of skull injury. In the first place morphine is a medullary depressant and adds only to the depression of the respiratory and vasomotor centers of the medulla. It is common to see a Cheyne-Stokes respiratory rhythm disappear when morphine has been stopped. Secondly, morphine masks the most valuable symptoms of gradually increasing intracranial compression. It is impossible to judge whether the stupor is increasing or decreasing. The contracted pupils which result mask completely the important pupillary dilatation of a localized hemorrhage. Its only advantage is that it produces quiet, which can be effected in the majority of instances by less dangerous methods. If it is believed that some medication is absolutely necessary, then drugs with less depressant effects upon the medulla should be employed. However, the use of hypertonic solutions; the removal of blood from the meningeal spaces; and good nursing accomplish this result with far more benefits to the patient, but these methods do require detailed care and attention. Recently Kennedy and Wortis[4] have recommended the administration of caffeine sodiobenzoate, in 0.5 gm. doses every four hours for the reduction of intracranial pressure and have presented good evidence in support of their views.

Every patient with a skull injury, accompanied by coma, should be kept flat in bed at all times for a minimum period of two weeks and this time should be extended in the more severe cases. It has been amply demonstrated that this is an excellent prophylaxis against the disturbing late symptoms of headache and vertigo which many of these patients develop.

SUBTEMPORAL DECOMPRESSION

It should be noted that a subtemporal decompression has not been described as a method of therapy in this group of skull injuries to which by far the largest number of patients belong. No matter how carefully performed and in the hands of a surgeon experienced in handling nerve tissue, some edema will follow this operation. This adds only to that intracranial pressure which already exists. It has been proven that the mortality rate following the treatment of skull fractures in a large charity hospital has been lowered tremendously since the abandonment of decompression operations for the relief of traumatic edema.

SURGICAL TREATMENT

This naturally brings up the question of just what the indications are for surgical treatment. To repeat them they are: (1) middle meningeal bleeding; (2) subdural hematomas, and (3) depressed fractures.

MIDDLE MENINGEAL HEMORRHAGE

The three most characteristic symptoms of this condition are: (1) dilatation of the pupil upon the side of the *hemorrhage;* (2) gradual onset of coma with or without an early lucid interval; and (3) the presence of signs of motor weakness on that side of the body opposite to the dilated pupil. The location of the external injury to the scalp or of the skull fracture must not influence the localizing diagnoses in these cases.

Middle meningeal arteries may vary enormously in their relations between the two sides of the head. The most common type is that which has an anterior and posterior branch which arises from the main trunk as it lies in the middle fossa, near the foramen spinosum, or farther up on the dura mater covering the lateral surface of the temporal lobe. However, there may be two or more branches running anteriorly and posteriorly. The fact that the parent trunk or any of these branches may be torn should indicate definitely the character of the operation which should be performed.

A typical osteoplastic craniotomy operation should be done with the temporal bone as the center of the bone flap. Attention should be paid to all of the meticulous details of such a procedure. There should be no bleeding from the scalp during the operation if proper hemostasis is employed. With the flap elevated the clot should be irrigated away with normal saline solution and the origin of the bleeding discovered. If it is on the surface of the dura, a fine cambric silk suture or a silver clip should be used for ligation. It may be necessary to elevate the dura from the floor of the middle fossa and compress the vessel into the foramen spinosum by bone wax in order to control the bleeding successfully. If very small oozing points still remain on the surface of the dura, small muscle stamps prove very efficient in controlling the bleeding. The bone and scalp flap should be replaced and sutured with the finest catgut or cambric silk sutures, layer by layer. No drainage material should be used if hemostasis has been effected. The bone flap should be so securely fastened that riding cannot occur. Any operative procedure which does not afford a rather extensive view of the middle cranial fossa and the convex surface of the cerebral hemisphere is likely to be accompanied by serious difficulties.

SUBDURAL HEMATOMAS

A rather trivial injury to the head may be followed, in certain individuals, by symptoms of cortical irritation and of increased intracranial pressure due to a subdural hematoma, These symptoms develop after a latent period which may vary from a few hours to months, or years. The hematoma, which is subdural and not extradural, is enclosed in a continuous membrane which may be slightly adherent to the dura but not to the arachnoid. On the arachnoid side this membrane is thin and is covered by a layer of mesothelium lined spaces containing blood and fibrin.

In some cases in which the onset of symptoms is delayed for only a few days following the trauma it may be that the bleeding occurs immediately after the accident and symptoms develop only when the brain becomes edematous. In the more chronic cases, the hematoma may be very thick, olive green and mottled, and this rather characteristic color is transmitted through the dura mater. The exact source of the bleeding is not as yet known accurately. In some instances the subdural hemorrhage is acute and quite extensive so that symptoms are produced immediately. Under such circumstances an extensive dural or cortical laceration proves to be the source of the hemorrhage.

When the presence of a subdural hematoma is suspected an exploratory craniodural opening over one or both hemispheres will give the most reliable evidence of the presence of the clot. Very frequently the hematoma is bilateral. Occasionally, the spinal fluid may be slightly xanthochromic but more often it is normal in appearance. If the diagnosis is verified, an osteoplastic craniotomy with reflection of a dural flap should be done. The clot should be removed as intact as possible. It may be peeled off the underlying cortex rather easily and resembles a fresh piece of liver in its consistency. Here again hemostasis must be very painstaking. If the clot is removed carefully and completely there is little danger of its reformation. On the other hand, cerebral edema may occur in the brain which is suddenly released from a rather long continued pressure. Therefore, it may be advisable to leave a stellate shaped opening in the dura mater over the temporal lobe

and remove the temporal bone from the bone flap, thus affording a decompression opening. The additional use of hypertonic solutions intravenously will aid in the treatment of the patient.

The diagnosis of this condition is often very difficult and a hematoma may be encountered when least expected. Putnam and Cushing[7] have given a comprehensive description of the chronic subdural hematomas and since the appearance of their article many other reports have appeared in the literature. Only recently, Fleming and Jones[8] have described a method of drainage for the treatment of these patients.

DEPRESSED FRACTURES

Depression of one or both tables of the skull may occur without any scalp injury. It is sometimes difficult to determine the presence of a depression without carefully made x-ray films of the skull. Often upon palpation the periphery of an extensive hematoma of the scalp will give almost the exact impression of a large depression of the bone. This should always be checked by roentgenograms.

It is the simple depressed fractures which require careful and conservative judgment concerning their treatment. Certainly not every depression of the skull should be operated upon. Rather pronounced depressions of the bone may not produce the slightest neurological symptom. To operate upon each case because of the anticipation of epilepsy or other evidences of a cortical nature is to disregard the small percentage of relationship between these symptoms and extensive skull injuries which was brought out in the great war. If obvious symptoms are present with a depressed fracture, the defect should be remedied. A small scalp flap incision should be made with the depression as the center. Persistent attempts to pry the fragments back into position should not be made. There is no reason why the fragments should not be approached by a rongeur through a burr hole opening in the adjacent normal skull and removed. Less damage to the underlying dura and brain is likely to follow the latter procedure.

Large extensive wounds of the scalp and skull may be accompanied by comminution of the bone fragments, some of which may be driven through the dura mater into the brain along with other foreign materials. These ragged, lacerated wounds of the scalp should be cleaned with soap and water, irrigated lightly with saline solution and the surrounding scalp should be shaved carefully. The wound should then be converted into a tripod incision and the edges debrided. These three flaps of the scalp may be retracted and the skull injury explored carefully. A tear in the dura should not be enlarged. Pieces of indriven bone, hair or clothing should be removed with a fine forceps. A soft rubber catheter should be passed through the opening in the dura and into the wound in the brain. By irrigating gently through the catheter with sterile saline solution and by gentle suction with a glass syringe and bulb, pulped brain and very small pieces of bone will escape from the wound in the brain.

The scalp incisions should be closed carefully and in layers, particularly over the site of the original laceration. A small rubber tissue drain may be placed in one of the angles of the incision and left for forty-eight hours. The dangers are, of course, the development of a brain abscess and meningitis. The frequency of these conditions is much less in a wound which is converted into one which can be primarily sutured.

TREATMENT OF COMPLICATIONS

Meningitis: Repeated lumbar punctures, when and if a meningitis has complicated the clinical picture, are of great benefit. They provide a method of draining the infected subarachnoid spaces and should be repeated as often as every six hours if necessary.

A careful cell count of each specimen removed should be made and at each puncture the pressure should be reduced to normal or slightly below. In addition, the patient should be given large amounts of fluids by mouth or subcutaneously during a twelve-hour period. During the following twelve hours hypertonic solutions should be given intravenously in addition to lumbar spinal drainage. By this means one may hope to wash out the subarachnoid spaces. Often the exudate of a suppurative meningitis may produce an obstruction in the subarachnoid spaces about the cisterna magna and lumbar puncture will not drain these spaces effectively. This may be determined by a Queckenstedt test, which consists in light compression of the jugular veins with a lumbar puncture

needle and manometer to record the fluid pressure. Normally, light pressure upon the jugular veins is followed by a prompt rise in the pressure and release is followed by a prompt fall. The presence of a block in the subarachnoid spaces between the cranial cavity and the lumbar spinal sac prevents this phenomenon. It may then become necessary to perform a cisterna magna puncture to drain the infected subarachnoid spaces.

The introduction of various types of sera into the spinal canal in suppurative meningitis is of little avail. Pollock[8] has shown that any substance introduced into the lumbar canal never ascends higher than the medulla, unless an opening be made into the dura over the cerebral hemispheres. Laminectomies with the introduction of a drain into the spinal dural sac have been performed in an attempt to provide drainage in cases of suppurative meningitis. The recorded results have not been sufficiently beneficial to afford much hope in this method of treatment.

Brain Abscess: Abscesses may develop in the tract of the brain injury and are under those circumstances commonly associated with a meningitis. On the other hand, an abscess may occur following an apparently trivial scalp and skull injury, but one which has produced a small tear in the dura mater.

As in all intracranial abscesses, the treatment and its success depends upon the chronicity of the infection and the ability of the brain to wall off the infection. Abscesses which have a surrounding wall may be drained by repeated punctures, or by the introduction of a small tube into the cavity. Those which are more acute do not offer a favorable prognosis nor a field for successful surgical therapy.

Pneumocephalus or Aerocele: A fracture of the skull which passes through the paranasal sinuses or mastoid air cells may be accompanied by air within the cranial cavity. Sneezing, coughing, straining or swallowing is necessary to force air through the bony and dural defect into the cranial chamber. The air may be located within the subarachnoid spaces; the subdural space; the brain or the ventricles. Air may often fill the frontal lobe and extend backward into the parietal lobe. The shadow is usually round or oval and projects backward from the frontal lobe. The cavity always communicates with the frontal or ethmoid sinus by an opening which may be so minute as to be overlooked easily. The symptoms of aerocele are mainly those of increased intracranial pressure. A cerebrospinal fluid discharge is usually present and rhinorrhea after sneezing or a change in posture is almost pathognomonic. X-ray films will furnish an absolute diagnosis. Dandy[10] has reported twenty-eight cases of aerocele and has suggested an operative method by which a transplant of fascia lata is used to repair the dural tear.

POST-TRAUMATIC SYMPTOMS

The most common complaint of patients who have apparently recovered from a skull injury is headache. The majority of patients complain of generalized pains in the head which are not well localized and which are increased by changes in posture. A smaller number complain of well-localized headaches which are persistent and unchanging in their location. The first group may be benefited most in a prophylactic manner by insisting that the patient remain flat in bed for a minimum period of two to three weeks. Penfield[11] has shown that the second group of patients have a collection of fluid in a localized portion of the cerebral subarachnoid spaces. In his opinion this accounts for their severe headaches. He has provided relief for these patients by substituting air, introduced by lumbar puncture, for the fluid. The air is later absorbed.

Dizziness, which must be differentiated from a true vertigo, is also a common complaint. Upon close questioning of the patient it may be developed that the complaint is really of unsteadiness upon stooping or looking upward. If the patient remains flat in bed for a sufficiently long period, this symptom is less likely to be present. True vertigo, in which objects rotate about the patient or vice versa, may follow a basilar skull fracture in which the eighth cranial nerve is injured.

Residual symptoms due to organic lesions of the central nervous system depend entirely upon the extent and location of the injury. Hemiplegia, or a monoplegia, may occur but if there has not been an actual destruction of brain tissue the degree of recovery may be most striking. Daily physical therapy treatments consisting of massage, passive movements, electricity and active exercises should be employed to advantage in these patients. Fa-

cial paralysis, peripheral in type, may be the result of an injury to that nerve in its course through the facial canal. The physiological function of this nerve may be interrupted by hemorrhage within the facial canal and under such circumstances, aided by a supporting splint for the facial muscles and physical therapy, the degree of recovery may be striking. Residual sensory symptoms from cortical damage are rarely encountered. Aphasia may occur as a part of a hemiplegia but unless the cortical damage is enormous, recovery may be expected. Mental symptoms may persist for a long period of time following a skull injury. They may consist of disorientation, loss of memory, emotional and habit changes.

Convulsions, which usually begin as focal attacks, may follow immediately upon the receipt of a skull injury or their onset may be long delayed. In the majority of cases, convulsions do not occur. It is impossible to prognosticate the occurrence of convulsions upon the location or extent of the brain injury. The basic status of the patient's nervous system probably plays a large factor in their development. In those cases of definite focal attacks which are followed by motor impairment, plastic cranial operations may be of service.

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SKIN GRAFTING*

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There are many erroneous ideas relative to skin grafting. Whether these are due to the dramatic possibilities offered by newspaper publicity, to misinterpretation of results, lack of adequate observation, or just intentional lack of respect for the truth, I know not. I do know that I am constantly hearing bizarre tales and results reported that cannot be duplicated by careful, conscientious scientific effort. During the past three years I have given this subject considerable study and experimentation and what I bring you is somewhat of a summary of my observations and review of what is definitely known and proven about this subject.

Skin grafting has long been practiced, but rather sporadically. During the last few years there has developed a definite trend to its more often and satisfactory use. Various factors have brought this about, the most important being:

1. *An economic factor*—in that it shortens the period of disability, decreases the time of hospitalization, and lessens the amount of dressings.

2. *A cosmetic factor*—in that it obviates unsightly scars; replaces objectionable birthmarks, and covers up defects caused by radical surgery.

3. *An adjunct of therapy*—in that it can be used as a corrective as well as a restorative measure in deformities, either congenital or acquired, and thereby aiding the surgeon in establishing as nearly

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as possible a complete anatomical, functional and physiological result.

For purposes of discussion, I have divided the types of skin grafts into two main divisions. These are *free* and *attached*. Under these two divisions come several types. In discussing each type I will discuss its indications, objections, means of obtaining and applying, and final results.

I. FREE: By this term is meant a complete separation of the skin and transplantation to another area.

(1.) *Small Full Thickness*: This type is known under various names such as Pinch, Pistol Shot, Cootie, etc. They are all variations of the type originated and used by Reverdin. They are usually from 1/24 to 1/8 of an inch in diameter and consist of the full thickness of the skin. In applying them they are usually placed 1/4 to 1/2 of an inch apart, upon either a fresh or clean granulating wound, being lightly set down, later pressed into the tissues and immobilized with a protective dressing. The indications for the use of this type of graft are:

(a.) To promote rapid healing of an extensive ulcerated area upon an individual who would not have much available skin for grafts, or in an individual whose general condition would not warrant extensive surgery. Likewise, it may be used to stimulate epithelialization, since it has been well proven that after the use of this type of graft that the edges of the wound start growing epithelium.

(b.) Since it lends itself nicely to a local anesthetic, may be used in individuals where a general or regional anesthetic would be contraindicated.

(c.) To hasten healing of an ulcerated area, thereby preventing a large amount of cicatricial tissue, with the idea in mind of subsequent removal and replacement with another type of graft.

The objections are:

(a.) Does not give a smooth scar at the site of the graft and it causes a scar in the area from which it is taken.

(b.) Requires extreme patience and time to perform.

(c.) Carries some risk of infection of sound tissue by multiple transfer of instruments back and forth from open ulcer.

This type of graft gives a good functional skin.

(2.) *Full Thickness* (Wolfe-Krause): Differs in nature from the above only in size. It is obtained from parts of the body that have movable excess of skin, by carefully dissecting the full thickness of the skin from the subcutaneous structures. It demands very careful technique, strict asepsis, and an absolutely dry field.

Indications for its use are: Sterile clean granulating surfaces or fresh wounds in which there is a necessity for a bearing surface, or in which no contracture is desired, such as the popliteal space, palm of hand, sole of foot, etc. Likewise, it is used in similar areas that do not lend themselves to grafting with pedicled grafts.

Objections are: It can be used only upon aseptic areas, requires a long time and very careful technique to apply. The area from which it is taken can not be used again as well as causing a scar in this area—must be in an area that can be immobilized and have pressure applied to graft.

Gives a good anatomical, functional and most often physiological result.

(3.) *Ollier-Thiersch*: This type having been originated by both Ollier and Thiersch, carries their names. It is cut at the level of the papillary layer of the corium. These grafts have given good results, but have gradually been replaced by a modification as worked out by V. P. Blair, which he terms a thick split graft. The difference is one of thickness of the graft; the split graft including parts of the papillae and connective tissue of the corium. This type of graft may be cut in large sizes, five to six inches in width and eight to ten inches in length. They lend themselves to stretching and shaping. give good smooth cosmetic results and with ordinary care their take is almost certain. They cause very little damage to the area from which they are cut, usually healing in ten to fourteen days and permitting second crop of grafts to be taken from the same area.

They are indicated in covering large areas, rapidly and with a minimum amount of scar, in forming a lining for an antrum, or a flap, or covering for an orbicularis oris or palpebrarum.

They do not give protection to a weight-bearing surface. They are also subject

to contraction, but if this factor is anticipated and allowances made for secondary grafting, this is not a real objection.

They are placed upon ulcer and sutured under tension with interrupted horse hair sutures, thus favoring more complete coaptation of graft and granulating surface. After they have been placed and sutured, small openings are cut in the grafts and all blood and serum pressed out. They are then pressed down firmly with two thicknesses of xeroform gauze, this reinforced with three layers of plain gauze and the whole splinted and maintained in position by marine or rubber sponges bound firmly to part with muslin bandages. They may be further immobilized by splinting if deemed necessary. The dressings are not disturbed for three days, then they are inspected if the grafts show any signs of maceration or any pus is visible; the dressings are carefully removed, area cleaned and dressed as before. If there are no signs of discharge, the dressings are not disturbed for seven days, when the dressings are removed and area cleaned.

(4.) *Buried Grafts*: By this type is meant either full thickness or split grafts which are buried beneath the surface. There are several varieties, the "tunnel," where strips of skin are buried and later the overlying tissue is cut through, thus exposing the skin growing beneath; the "buried pinch," accomplished by stabbing small pieces of full thickness skin into granulations; both of these are useful in dealing with dense cicatricial tissue and strictures. Last, the Esser inlay or stent graft, which is an Ollier-Thiersch graft sutured skin side inside next to a wax mold, this in turn buried in the soft tissues and allowed to remain three to five days when the sutures are removed, the wax drops out leaving the skin firmly pressed down and growing. This type is especially useful about the eyelids, nose, lips and chin.

Free grafts have the following advantages:

1. Can be completed in one operation.

2. No period of immobilization of part of body by being attached to another part.

3. They heal rapidly.

4. Large per cent replace donor area by normal skin.

II. ATTACHED OR PEDUNCULATED GRAFTS are masses of skin and subcutaneous fat which have been separated from all surrounding skin except a selected portion called the pedicle, through which they receive their blood supply.

This type of graft is indicated:

(1.) To cover exposed tendons, nerves, joint capsules or bones.

(2.) To close in defects requiring adipose tissue for contour restoration.

(3.) In areas which normally receive weight bearing and considerable motion.

(4.) In areas that cannot be sufficiently immobilized to receive free grafts.

(5.) To construct new structures, as nose, a biliary fistula, esophagus, urethra, etc.

They are for the most part prepared in steps under local anesthetic, and have a wide variation of appearance as manifested in the simple tongue graft, pocket graft, slit graft, and tube graft.

The objections to their use are:

1. Requires long period of time to accomplish; and

2. Many operations.

3. A period of immobilization of parts of the body.

4. Leave a defect in area from which they are taken.

Pedunculated flaps require study in planning, not only in regard to use of tissue, but also consideration must be given direction and establishment of blood supply. On the whole they require more experience and study in their use than the free grafts.

Throughout this entire discussion I have purposely only discussed autografts, as they are the only ones that are really useful. During the past few years considerable work by Neuhoff, Loeb and Padgett has been done relative to transferring skin from one individual to another and all with the same result—it cannot be done. Time does not permit a discussion of this, but according to Loeb, there is a certain definite integral of differentiation for each individual's skin and this is different from all others.

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DISCUSSION: *George H. Kimball, M.D.*, Oklahoma City:

I am glad to hear Dr. Burton mention the false conceptions about skin grafting. These ideas are not confined to the laity alone because I hear physicians frequently mention the same thing. Dr. Padgett has very clearly set forth the possibilities of grafting skin from one individual to another. He found that skin taken from one new born twin would not grow on the other twin. Nevertheless, these stories indicate to me that there is a widespread interest in plastic surgery. Recent developments in the transplanting of glands lead us to hope that in the future we may be able to use skin from the patient's relatives or friends. At the present time the only practical method is to use skin from the patient himself.

Dr. Burton has given a very comprehensive outline of the various kinds of skin graft together with their special indications. The thing we try to do in grafting skin is to replace as nearly as possible the defects that are presented in various types of cases. In my experience, the graft that can be used most frequently is the split graft. This type of procedure can be used to make up a skin defect on most any part of the body. It must be remembered that the graft can be made very thin or it can be cut quite thick. Thin grafts shrink much more than thick ones. Also, if it is used upon an exposed part of the body one must remember that the color of the graft cannot be controlled. This graft is fairly easy to prepare and the healing period is rather short. It is especially useful in reconstructing contractures about the eyes and mouth, axilla, elbows, knees or hips. Also it is quite practical in covering a large raw surface following the release of a contracture or after the excision of an old scar.

Another very useful field for this type of graft is its employment in covering large granulating surfaces following burns. A patient who has sustained an extensive burn of his back or legs or arms can be treated by tannic acid, have the crusts removed in a week or ten days. Then the granulating surface is cleansed by wet dressings and the area grafted. Ten to twelve days following the operation these cases often leave the hospital entirely free from all dressings and entirely healed. This makes the hospital time not to exceed four or five weeks in some cases, whereas treated by other methods these cases were hospitalized for five or six months. They used to have infections, pain and major disfigurements. Now the hospital time is short, pain is minimized and disfigurement lessened. I think that cases treated in this way represent one of the greatest advances in surgery today.

Now I have spoken principally about the split graft, but it has its limitations. For instance, the split grafts all shrink and have little mobility. Therefore, when we need a thick, well padded graft we must use a pedicle graft. These are especially indicated where there has been a loss of tissue from the palms or the backs of the hands or the soles of the feet where weight bearing is essential. Also where

there is a loss of part or all of a nose or part of a lip.

A full thickness free transplant to make up a defect in the face assures a much better anatomical result as well as retaining its normal color. These procedures take much more time, yet the results are certainly worth while.

As I mentioned before, there is a definite increase in the interest in plastic surgery in this country today. This branch of surgery is being more popularized the last few years.

It has been a pleasure to hear Dr. Burton's paper and I consider it a privilege to be asked to discuss this subject.

—o—

TRANSURETHRAL SURGERY *of the* PROSTATIC GLAND*

F. CLINTON GALLAHER, M.D.
SHAWNEE

We cannot fail to be mindful of many of the changes which are daily occurring about us. Economically and morally, socially, politically, and as individuals, many practices and customs are being altered. Someone has called our attention to the fact that it was a short while ago when the possession of gold in the bank was an honorable condition to desire and at once a man might be thrown into prison for the possession of alcoholic beverages. The reverse became true a short while ago. We do not feel pessimism, nor great optimism, but we are filled with a sense of changing values and we cannot help wondering in what manner many of these changes may effect us all, and what things may be thought true and good a few years hence.

Alterations in the methods of diagnosis and treatment have been continuously occurring since men became interested in the treatment of the sick, and stopped condemning the weaklings to physical death from neglect or actual abuse, and yet, it appears that physicians have never witnessed so many changes as within the last decade and the future seems potentially even more complex. It must be a part of each man's duty to his profession, if he recognize any obligation, to attempt to keep himself informed of the significant methods which are presented from time to time, or almost constantly, that represent departures from previous practices which have seemed good in the past. For it is probably true that the combined medical knowledge of all men falls far short of a state which could by any measure be considered complete, and we are so often disappointed in finding that the best of treatment, which we, or any doctors may suggest, fails to relieve the patient, to save the life for a while, or, if treatment is adequate to the indications, it is often accomplished with great physical and mental distress. It occurs not infrequently, also, that relief is bought only at great cost, which many of our people are wholly unable to pay.

It is for these reasons, and for certain others, that I wish to direct your attention briefly to a certain phase of development in the surgical relief of bladder neck obstruction, with no attempt at all to make you acquainted with any technical phases of this matter of which you are unaware, but with the particular end in view that you may be led to think a little more of certain possibilities that are even now in the process of being discovered.

We feel there is reason to believe that the surgical treatment of the prostatic obstructive phenomena deserves the study of doctors who have interest in patients who suffer from this cause, whether they actually perform the transurethral operation or not. A large number of men have been so interested, many more are now working upon the problems that are related. Certain men have proposed changes in the methods of approach, and instruments of precision have been offered. We are now in a period of development wherein several proposed alterations are being subjected to exhaustive research and trial. We believe that time alone will show us wherein certain instruments and their application are superior; it seems certain that the combined curiosity of many, seeking the best possible answers, will hasten

*Read before Surgical Section 42nd Annual Meeting, Tulsa.

the arrival at a more satisfactory solution.

It is usually true that the simple instruments, performing their function with ease, need little of discussion as to their merits. Their simplicity is apparent, their usefulness certain. In like manner it is true that when many and complicated devices are proposed for accomplishing certain purposes it frequently occurs that all of them possess one or another of many faults, and that instrument which is most simple and direct in its application is usually most satisfactory. It appears that this general statement may be applied to the specific types of instruments proposed for the accomplishment of various transurethral surgical procedures. I do not know. We may mention the reports of results with those methods employed by Doctors Braasch and Bumpus, and Dr. Caulk. The McCarthy type of resectoscope appears, to some doctors, to perform with greater precision. Its mechanism is certainly more complicated. Perhaps its merits are appreciably increased.

TYPES OF INSTRUMENTS

You are all doubtless familiar with one or more of the types of instruments used for this work, but it should be indicated, I believe, that there are two distinct principles which distinguish all varieties. The cautery punch type of instrument depends for its hemostatic qualities upon the heat generated by passing a current through a resistant blade. The blade, then, which performs the cutting operation, is simply hot, and this heat is maintained during the removal of each separate piece of the tissue. Coagulation is obtained by a simple searing of the surface. The Bumpus-Braasch and McCarthy types employ a system of needles or loops and secure the control of bleeding by the use of a high frequency current. The essentially distinguishing feature seems to be that this type of the so-called electro-coagulation is more effective in immediate control of bleeding, but this is accomplished by increasing the temperature of the tissues to a greater degree of intensity and to greater depth.

COMMON ADVANTAGES

The transurethral route apparently promises a number of things which are of interest to those who seek to relieve bladder neck obstruction. May I call your attention to a few advantages which are claimed:

1. There is less of surgical shock from loss of blood, manipulation and other factors. In the hands of skilled men (and many are recognized) it is found that mortality rates are from 0.9 to 4.7%, whereas in the surgical removal of the entire gland such low rates are reported by a relatively very small number of operators. It may be questionable as to the direct evidence this statement bears in relation to the matter of shock, but the ultimate result of profound shock, viz: death, seems to justify the conclusion. It should in no wise be understood, however, that any important surgeon regards the operation with other than profound respect, for it is a major surgical procedure. The preparation of the patient, the care for each detail of procedure, and the post-operative routines must be observed with diligence. It is doubtless due to the recognition of this attitude that the results have been uniformly encouraging. It is altogether likely that a failure to do so would be apt to discredit quickly a superior method.

2. Period of disability and the costs are diminished. The average time of preparation is from ten to twenty days in most cases; the convalesence frequently requires no more than a very few weeks. The total hospitalization is often less than three weeks. The cost of relief by prostatectomy was formerly comparable to that of a major fracture, including bills for long periods of hospitalization and from longer periods of physical disability.

3. The assurance of a good end result seems now to be as certain as in the removal of the entire gland, except in a very few cases. Where adequate drainage and relief of back pressure is desired, the results of the removal of relatively small amounts of tissue are most gratifying. A certain number of cases, presenting very large obstructions, have been found reduced in size out of all proportions to the amount of tissue removed. It occurs to many operators that in these cases a second operation, which was thought necessary, becomes wholly unnecessary a few weeks after the first operation. The ercentage of poor results compares quite favorably with those of the former removal of the whole gland procedures.

4. Comfort may be secured for patients

suffering from advanced carcinoma of the prostate, without great hazard.

5. Diagnosis by biopsy is relatively simple.

METHODS

A few principles of treatment are common to the care of patients where any of the several types of instruments are to be used for the surgical procedure. These have many points which are identical with those of importance in the care of patients having the suprapubic (or perineal) prostatectomy.

The preparation must be attended with infinite patience so that the hazards are minimized. The risk is only reduced if this is borne in mind. A gradual decompression must be accomplished in order to protect the renal function. Massage, heat and local instillation improve the condition of the lower urinary tract in many cases. The urine should be made as clean as possible. The renal function and the nitrogen elimination should be caused to approach the normal as nearly as possible. The patient's general condition and his mental attitude should be built up as for any other major surgical procedure of an elective nature. Haste or neglect of the preliminaries are extremely apt to precipitate a slower recovery, to increase the probability of poor results, or even to kill the patient; and we should consider thoughtfully this type of work, which is relatively new in the minds of many of our people, may be brought easily into disfavor by a few early failures. I recall the most unfortunate case of a surgeon who performed the first (and only) perineal prostatectomy that was ever done in my community (so far as I now know). An injury to the sphincter ani was so severe that the most important function, which it performs normally, was forever thereafter absent. This occurred some twenty years ago, and to this day there is scarcely an older man to be found in the vicinity who does not know about, and is not prejudiced against perineal prostatectomy, for that particular reason.

The technique of the actual procedure adapts itself to the individual operator, and to the various types of instruments in use. We now prefer a certain type, which may continue to gain in favor; it may be that some other type will seem best. We favor the Caulk punch for the following reasons:

1. Simplicity of operation.

2. Direct visualization.

3. Adequate control of primary bleeding without great danger of secondary hemorrhage.

4. Relative infrequency of complications.

5. Lower mortality rate.

The fenestration permits direct vision of the field of operation. Although a recent refinement has offered endoscopic vision and constant irrigation with water, many operators still prefer the direct method. The area of selection is introduced into the slot, the field is cleaned and the circular cautery punch knife removes the piece of tissue. This maneuver is repeated until a sufficient total amount of tissue has been removed.

It appears that the simple searing of the surface which is accomplished by this method is adequate for hemostasis. In the author's series (i. e., the author of the Punch) of a few more than 1000 cases it has been necessary to do the suprapubic operation for control of bleeding in only four cases. Serious hemorrhages are infrequent and are usually controlled by the pressure of mineral oil in the bladder or by aspiration of clots as with the Bigelow instrument. The secondary hemorrhages which occur incident to the sloughing of necrotic tissues appear to be much less frequent than when the deeper electro-coagulation method is used. The searing of the surfaces usually controls primary bleeding and there is a definitely diminished probability of sloughing en masse. The deeper coagulating devices, on the other hand, permit a more nearly bloodless operation, but appear to be associated more often with the threat of a severe secondary hemorrhage. More extensive areas for absorption are probably opened up by the sloughing of larger necrotic areas, and hence the implication, at least, of more frequent sepsis.

If you care for statistics in this connection, a recent report (S. G. and O., Feb. 15, 1934, page 352) of analysis shows the following: In 7,415 punch operations, 22% of the operators mentioned urinary sepsis, and this complication produced death in twenty cases. In 8,073 resection operations, urinary sepsis was mentioned by 55% of the operators, and the complication was listed as a cause of death in

91 cases, approximately four times as many as with punch method.

In the same series studied there occurred 81 deaths following the punch operation and 302 following the method of resection, or 1.09% and 3.74%. It seems particularly significant that embolus occurred almost ten times as frequently following electrical resection and uremia was more than five times as frequent. Emboli, we believe, find a greater incidence because of the specific method. It is likely that the prevalence of uremia, on the other hand, indicates a relative carelessness in the preoperative treatment, and should serve as a warning to all men who perform any type of transurethral operation. It can scarcely be emphasized too much (repeating again) that the transurethral route to the relief of bladder neck obstruction does not in any manner constitute a minor operation. And it is quite probable that any surgeon who fails to give these cases the same adequate, careful preparation as for a supra-pubic removal, for example, is extremely apt to suffer the embarrassment of an increased number of complications and of deaths.

The claims of advantage which are made in favor of the cautery punch seem well justified, and the continued use of this method by a large number of surgeons will tend to further establish its merit. If it is discarded or modified we will have reason to believe that the present models are inferior, as indeed, they probably are. The contention, however, remains. The question I wish you to consider is this: Is the punch now superior, or inferior, to other types of transurethral instruments in common use? We believe it is superior. Is the simple cautery surface searing mechanism superior to the deeper electro-coagulating device? These facts which appear to be well substantiated in the collection of statistics from scores of doctors who have operated upon a few thousand cases, using both the cautery punch and the frequency resection method are submitted for your consideration.

It appears that the incidence of primary severe post-operative hemorrhages following the punch operation is about one-half that of the resection, and the number of post-resection cystotomies necessary for the control of bleeding is twice the number necessary following the punch operation. With the frequency types of resection, secondary hemorrhages developed three times as often, and the mortality is three times as great as with the punch type of operation.

Urinary sepsis developed as a post-operative complication following the high frequency resection procedure in a ratio of 2.5 to 1 and the incidence of other complications, such as urinary incontinence, fistula, prostatic abscess and bladder injuries was more than four times as frequent with the resection types of operation.

A certain number of expert cystoscopists have reported that the mortality was as high as 25% in their first 100 cases by resection method, a rate which can scarcely justify any sort of procedure for the relief of vesicle neck obstruction, despite the fact that their later mortality rates dropped to about 5%.

SUMMARY

1. Attention is called to the use of relatively new instruments of precision in the relief of obstructive phenomena at the bladder neck.

2. Results of various operators are considered in regard to the types of instruments and methods used.

3. An appeal is made to those who encounter these cases for a continuance of extreme care in the preparation of patients for transurethral surgery; and

4. For a serious discussion and evaluation of the relative merits of the various types of instruments and procedures.

Dr. Fred H. Clark: I am particularly interested in this subject. I am an exponent of the resection method. The punch method has many things that commend it and I am therefore strongly in favor because of the principle of the intraurethral resection done with the improved resectoscope. The time in the hospital averages but little more than ten days. The inconvenience of the patient himself is so markedly less. This is such a revelation and such a new departure and so manifestly superior to the older methods that I think it is worth while for every young man to study it, and especially the young man who is specializing in urology.

President's Page

LEROY LONG, M.D.
Medical Arts Building
OKLAHOMA CITY

THE DEVELOPMENT AND IMPORTANCE OF THE STUDY OF HUMAN ANATOMY

THE TREMENDOUS importance of a knowledge of human anatomy in the work of the doctors of medicine has been realized ever since the time of Herophilus and Erasistratus of the medical school of Alexandria in the third century before the beginning of the Christian era. Even before that era Hippocrates had essayed the study of anatomy, principally in the field of osteology, and Aristotle, the principal figure in the creation of the University of Alexandria, had stimulated the study of anatomy generally by his work in zoology.

After the destruction of the Alexandrian school, Marinus and his pupil Quintus, during the ascendancy of Nero, made some contributions to the subject which seem to have stimulated Galen (Claudius Galenus) to the extent that he became an ardent student of zoology, most of his dissections being upon the bodies of monkeys. While this led to grotesque conceptions of human anatomy, it was probably the foundation upon which his lasting reputation in medicine was built.

It is distinctly significant that the revival of medicine after the Dark Ages was definitely associated with the sane development of the study of human anatomy. During the latter part of that long, weird and gloomy period Madino, in 1316, began the teaching of human anatomy at Bologna, but, notwithstanding some authors refer to him as the father of modern anatomy, it was not until the celebrated work of Andreas Vesalius (Andre Vesale, as he is known in his home land), of Brussels, that a firm basis for the study of anatomy was established. With all honor to Madino and other predecessors, it is to Andreas Vesalius that we owe profoundest thanks and admiration. During the fifty years of his life (1514-1564) he, in spite of fiercest opposition and most cruel discouragements, demonstrated that a knowledge of gross anatomy was, without question, of preeminent, fundamental and indispensable importance in the study of medicine.

Ambroise Pare (1509-1590), sometimes called the father of French surgery, and by many regarded as the father of modern surgery (not to be confused with Lord Lister who was the father of *antiseptic* surgery), was a contemporary of Vesalius. It does not require a long stretch of imagination to believe that Pare had the advantages of the teachings of Vesalius, especially since they not only flourished during the same period but spoke the same language and lived near each other, one of them in Paris, the other in Brussels.

In 1628 Wm. Harvey published his immortal work on the circulation of the blood, "Exertatio Anatomica de Motu Cordis et Sanguinis," and, in that connection, it is interesting to know that for a long time before that time Harvey had been teaching anatomy and surgery at the College of Physicians in London.

There is no more striking example of the value of anatomy to the medical man than the professional life and work of John Hunter (1728-1793), the celebrated English anatomist and surgeon. He had had very meager premedical educational advantages—so meager that Sir Clifford Allbutt in "Notes on the Composition of Scientific Papers," published a few years ago, refers to Hunter as "an illiterate genius clutching inarticulately at the evasive shodows of truth"—and yet the professional influence of the erudite Allbutt has not gone very far from Cambridge, while the influence of John Hunter, the profound student of gross anatomy, is felt in every land, and his teachings are ineffaceably stamped upon the records of medical progress all over the world. Despite early educational handicaps, his passionate determination to know about the gross structure of the human body makes it possible and appropriate for writers of this

day nearly 150 years after his death, to designate John Hunter as the great anatomist who "placed English surgery on a scientific basis" and who "was the most original and stimulating teacher of surgery of his time."

The development and knowledge of gross anatomy naturally and necessarily preceded the development and knowledge of microscopic anatomy. When Gaspar Friedrich Wolff (1735-1794) advanced and supported the doctrine that organized beings originate by the differentiation of simple cells he was learned already in gross anatomy.

Marie Francois Xavier Bichat (1771-1802), the founder of the study of normal and pathological histology, after studying at Nantes, at Lyons, at Montpellier, began his meteoric career at Paris by giving private lessons in gross anatomy and surgery. A few years ago I found, in a book shop at Toulouse, a complete set of four volumes of his "Anatomie Generale" (General Anatomy), and it is now in my library. In perusing its pages any thoughtful student will see at once the substantial groundwork of this most remarkable young man whose prodigious labors before his death at 31 gave such a vast amount of useful information to the medical profession.

As will have been seen by this time, my purpose is to emphasize the preeminent importance of a knowledge of gross anatomy. Microscopic anatomy—histology embryology, morphology, et cetera—is obviously of tremendous importance, but the subjects which it embraces are but the branches and twigs and leaves of the anatomic tree. If one is interested in leaves, only, let him study leaves, only, but with the distinct understanding that it is an academic proceeding that is of but very partial value in preparation for the practice of medicine. Likewise, he may study twigs if he is interested only in twigs; or branches, forsooth, but with the same limitations.

Microscopic anatomy is simply a continuation of gross anatomy, and it ought to be taught in connection with gross anatomy. The microscope simply amplifies vision, and, in anatomy, amplified vision is of service only when it is preceded by a knowledge of the parts of the human body that can be studied without amplified vision.

—LeRoy Long.

HORACE REED, M.D.

304 Osler Building
1200 North Walker Avenue
OKLAHOMA CITY

Dr. L. S. Willour,
Ainsworth Building,
McAlester, Oklahoma.

Dear Doctor Willour:

Through the columns of the Journal, it seems desirable to reach the doctors over the state in order that we may get their cooperation which will be necessary if the Legislative Committee is to accomplish all that is expected of it. The efforts of the State Committee thus far has resulted in nothing tangible. The Committee, however, is decidedly of the opinion that it will require team work if we are able to get results. In other words, the doctors in each county or district organization must give their active support.

The developments thus far strongly indicate that candidates for the Legislature are going to do what the doctors at their home want them to do. In certain instances they have decidedly expressed their thought. Therefore, it seems necessary, and urgently so, that each county have a Legislative Committee that will function with vigor. The time for these Committees to function will be from the date of the election to the date of the meeting of the Legislature in January. If such a plan is carried out, we believe that we can carry out the mandate which was given us by the House of Delegates at Tulsa.

The State Committee promises to do the best it can to do what is expected of it, and, if it fails, it will probably be the result of the lack of cooperation from the County Committees. Each County Committee should familiarize itself with the program which we have before us, and inform their members of the Legislature before they come to Oklahoma City of their wishes. It is also desirable that the State Committee have a list of the Legislative Committees of each county and district so that in case of necessity we could communicate with them promptly.

Since the medical profession want nothing but what is in the interest of the public as a whole, it should be easy to obtain it if only we go about it in an orderly manner. I hope that you will be able to get this idea over to the profession all over the state to the end that we may be able to march through to an easy victory in the coming Legislature.

Cordially yours,
HORACE REED, Chairman.

ENDOCRINE DWARFISM

William Engelbach and Robert L. Schaefer, Detroit (Journal A. M. A., Aug. 18, 1934), believe that the problem of diagnosis and treatment of statural undergrowth, or dwarfism, rightfully belongs to the general practitioner and pediatrician. One has but to study the normal growth increment curve in the human being for this proof. It testifies to the fact that approximately 50 per cent of the total growth has been attained at the age of three years. Its increasing plateau diminishes rapidly as adolescence or sex maturity is attained. It logically follows that diagnosis and adequate treatment during the infantile and early juvenile periods should give greater therapeutic results. The work of Smith indicates that thyroid extract is a valuable adjunct in this form of treatment. The cases giving the most favorable response display a delay in roentgenographic study of osseous development.

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EDITORIAL

We are pleased to note that the abstracting department of our journal is a jump ahead of some of the journals, as in the September issue of the Annals of Otology, Rhinology and Laryngology we find abstracts of articles that were abstracted in this journal months ago. More credit to our active abstractors.

—o—

MEDICAL CARE

Many plans are being evolved by virtue of which it is proposed to give to the persons of moderate income satisfactory medical service. State medicine is being advocated by some groups; various insurance plans have been recommended; none of these, apparently, under complete supervision of the organized profession.

Complete medical service, without the insurance principal, is being given to people of moderate income in Detroit through a plan developed and put into operation by the Wayne County Medical Society. A demonstration set-up is bringing medical service to employed persons of moderate means, people who do not want paternalism or charity, but merely credit. This plan offers complete medical service of physicians, hospitals, dentists, nurses and pharmacists, at a fee that can be paid by easy, time payments.

The plan of the Wayne County Medical Society is to assure employed people of moderate income that they can get the physician of their choice and secure medical service when they need it. Furthermore, the bureau works out a plan whereby the account can be paid from week to week.

Those people who for financial reasons are neglecting their health are encouraged to get in touch with the bureau. Because they have no cash reserve is no reason that medical service must come to them through the agency of free dispensaries and tax-supported hospitals and clinics.

Realizing that healthy workers are more efficient and desirable, industrial concerns cooperate (1) by telling employees to see their family doctors; (2) verifying employment wages and giving credit information to the bureau on request; (3) assisting in the collection of a fair fee, based on the employee's ability to pay.

The essential features of the medical service plan may be briefly summarized as follows:

1. The Wawne County Medical Society headquarters become a coordinating center (with a social service set-up) for those cases which require assistance and paying for complete medical service, including hospitalization and medical, dental, nursing and pharmaceutic service.

2. The members of the profession become the active staff caring for patients. All forms of medical care, consultation, x-ray and laboratory procedures are to be performed in the office or laboratory of the physician or at the hospital where he takes his patients.

3. This plan includes hospitalization—

all the major hospitals of Detroit are cooperating, except one.

4. Arrangements have been and are being made with the industrial concerns to make this service known to their employees. The factories and shops are cooperating in giving information and in the collection of accounts. To date the plan has received an enthusiastic welcome by each employer approached.

5. All cases in which the benefits of the coordinating plan are desired will be registered at the Wayne County Medical Society headquarters and referred to the family doctor, if the patient has one. If the patient has no physician, he is asked to select one. The patient will be given an identification card to be presented by him to the physician selected.

6. If several physicians and a hospital cooperate in the care of a case, the bills for fees will be combined into one bill and terms will be arranged according to the patient's ability to pay. The physicians and the hospital set the fees—not the bureau. Payments received by the central bureau will be distributed to each cooperating physician, hospital, dentist or nurse.

7. This plan preserves the recognized patient-physician relationship. It does not affect compensation cases. The patient always has a free choice of physician or dentist and the physician has free choice of hospitals, specialists and laboratories. exactly as carried on in private practice.

8. The most important feature of this plan is that it places complete medical and hospital services within the reach of every worthy patient and provides an easy payment plan for the settlement of bills.

9. The plan should increase the health and happiness of Detroit and Wayne County citizens, as it provides a method whereby people can procure needed medical services. It should remove a large proportion of the financial reasons for delaying medical service. The consolidation of medical and hospital bills, with the arrangement of definite terms at the time the service is rendered, should result, with the cooperation of the employer and all concerned, in an increased ratio of collections.

10. Physicians send their bills computed at their usual fees for these patients to bureau headquarters, giving certain details of their charges. The physician does not make collection of these charges—the central bureau makes arrangements for collections and has the cooperation of the employer. To defray the cost of operating the bureau, 10 per cent of sums actually collected is retained by the bureau.

The bureau is under the direct financial and executive control of the board of trustees of the Wayne County Medical Society. An advisory committee, called the Board of Arbitration, aids the board of trustees with recommendations regarding details of operation, handles disputes, and assists the smooth performance of the bureau. Representatives of the various cooperating professional groups are seated on the Board of Arbitration. The bureau is under the coordinating supervision of the executive secretary of the Wayne County Medical Society.

The Wayne County Medical Society Bureau has grown so rapidly that statistics are obsolete almost before they can be published. The plan has received a hearty welcome from every industrialist to whom it has been explained. The total number of employees of the industries now cooperating with the bureau is approximately 229,980. Industrial concerns have various methods of cooperating with the central bureau (such as by payroll deductions and employee loans), but they all agree on one point: they are willing to extend every courtesy to the medical organizations if they can cooperate with one center, but it is impossible for them to deal with over 7,000 individual units who serve the public. Their reason is obvious. One central bureau in the medical society would entail only one deduction from payrolls per month to cover the medical welfare of their employees; the bookkeeping is thus greatly simplified. If, however, the industrial concern attempted similar cooperation with thousands of individual physicians, dentists, and hospital, it would require a tremendous amount of detailed and expensive bookkeeping. Centralized bookkeeping and collections are vital in obtaining the cooperation of large employers of labor. They hesitate to promise cooperation except with one center.

The foregoing is largely abstracted from a report in the Journal of The American Medical Association and is given to the medical profession of Oklahoma for their consideration. It may be that in some of the larger centers this would be a practical solution of a very vexing prob-

lem. Of course, like all other plans, it does not meet every contingency, but it may be a basis upon which can be constructed a more or less satisfactory solution of the problem.

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WHAT AILS NURSING?

It would appear that some recognition should be given to the final report of the committee on the grading of Nnrsing Schools, whose membership was composed of representatives of the leading medical, public health, and nursing organizations. This report might be fittingly called "What Ails Nursing?" for it is devoted to an analysis of the educational, professional, vocational, and economic problems which today beset the nursing profession.

The basic answer to this query is tersely summarized by the report of the committee in two words, "undereducation" and "overproduction."

The committee's report appropriately ends with a terse summary of four points, to the effect:

1. "Nursing, in its various aspects of bedside care, health education, and institutional service offers one of the most attractive and congenial fields open to women and fills one of the most urgent needs of the modern social order.

2. "It calls for women of fine natural capacity, sound basic education, and high professional training.

3. "The present system of nursing education is, in general, not attracting as many women of adequate capacity and basic training as would be desirable and is not giving them the quality of training which fits them for the demands of their professional career. On the other hand it is producing far too large a number of nurses of a type unsuited to those demands.

4. "The fundamental cure of these twin evils can be effected only by the development of nursing schools which are directed with a primary educational aim and animated by professional ideals. They must cooperate with hospitals but they must have their own management and their own budgets if they are to function as educational institutions and to meet the social needs of the community."

The final words of the report constitute a declaration and an appeal:

"The committee believes that fundamental improvement in nursing education is a vital essential for the health of the American people and presents perhaps the most important opportunity in the whole field of American education. We are confident that the evidence of the need for reform is unassailable and that the general lines of progress have been adequately outlined. We appeal to the nurses, the physicians, the hospital authorities, the colleges and universities, and the public to meet the challenge here presented."

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REPORT OF ANNUAL SECRETARIES' CONFERENCE

It was the pleasure of your Secretary-Editor to attend the Annual Conference of Secretaries, held in Chicago, September 21 and 22. The attendance was particularly good and the program quite interesting.

The general theme of the Friday morning sessions seemed to be the attitude that organized medicine must take in order to prevent the socialization of the practice. Mr. LeRoy A. Wilkes, Executive Secretary of the New Jersey Association, read the principal paper on this subject, however, giving little or no concrete information, except to advise that all schemes directed toward this subject must be kept in the hands of organized medicine and to beware of lay leadership.

Dr. Oliver J. Fay, Chairman of the Board of Trustees of the Iowa State Medical Association, discussed The Centralization of State Medical Activities, and the organization as outlined in Iowa coincides very closely with the one perfected in our own state with the exception of the appointment of a board of trustees, consisting of three members that may represent the Council and who are given practically the same authority as the Council in our organization.

Our neighbor, Dr. Holman Taylor, Secretary of the Texas State Medical Association, gave in detail the setup necessary for the care of the indigent sick under the arrangements made by the NRA. These details will be very valuable to our state society if we ever receive any Federal relief in the state for the care of the indigent sick.

Your Secretary spent a half day in the offices of the American Medical Association where he was given every consideration by the officials of that organization. In all it would appear that the trip was well worth while and that some good will result from the time spent in Chicago.

Editorial Notes—Personal and General

DR. SAM McKEEL, Ada, has returned from a months' vacation in California.

DR. J. DORROUGH, McAlester, has been appointed county health physician of Pittsburg county.

DR. and MRS. A. S. RISSER, Blackwell, have returned from points in Minnesota and Vermont.

DR. AND MRS. W. P. FITE, and family have returned from their summer home at Lake Belletaine, Minn.

DR. L. S. WILLOUR, McAlester, attended the meeting of State Secretaries held in Chicago, September 21 and 22.

DR. ELIZABETH CHAMBERLIN, Bartlesville, has returned from the east, visiting Washington, Boston and Annapolis.

DR. and MRS. McCLAIN ROGERS, Clinton, spent the month of August and September in points in South Carolina.

DR. L. A. HAHN, Guthrie, has returned from a six weeks' trip to California, and a cruise to the Hawaiian Islands.

DR. AND MRS. M. A. HOUSER, Tulsa, have returned from Rochester, and a fishing trip at Solon Springs, Wisconsin.

DR. L. M. OVERTON, former physician for the State Industrial School for Girls, Tecumseh, has opened an office in Shawnee.

DR. AND MRS. W. T. SALMON, and daughter, Duncan, have returned to their home after a vacation trip to points in the south and east.

DR. WILLIAM E. EASTLAND, Oklahoma City, has returned from a two months' special study in the New York Post-Graduate Medical School.

DR. and MRS. HORTON E. HUGHES, Shawnee, have returned from Eau Claire Lake, Wisconsin, and Gunflint Lake, Canada. They returned by way of Rochester where Dr. Hughes spent several days studying at the Mayo Clinic.

ANNUAL CONFERENCE OKLAHOMA CITY CLINICAL SOCIETY

Particular attention is called to the announcement of the Fifth Annual Conference of the Oklahoma City Clinical Society. Details as to the faculty and program will be found on page 15 of this Journal.

This post-graduate course, sponsored by the physicians of Oklahoma City, should receive the support of the medical profession of this state and after contemplation of the faculty and program I feel sure that every practitioner of Oklahoma, if possible, will attend this conference and receive the benefit of instruction from these leading authorities.

Send in your registration fee early to the Secretary, 1010 Medical Arts Building, Oklahoma City.

SOUTHERN MEDICAL ASSOCIATION MEETING

This organization will hold its annual meeting in the beautiful city of San Antonio, November 13th to 16th, under the presidency of our neighbor, Dr. Hugh Leslie Moore, of Dallas, Texas.

You will find an official announcement of this meeting on page 11 of this number of your Journal which will certainly interest you.

Not often are we fortunate in having this meeting so near home where we have the advantage of excellent railroad facilities, as well as the best sort of roads for automobile travel.

The Southern Medical Association can expect a large delegation of Oklahoma doctors to participate in this annual session.

ANNOUNCEMENT

The Radiological Society of North America will hold its next annual meeting at the Hotel Peabody, Memphis, Tennessee, December 3-7, 1934. The medical profession is cordially invited to attend. Further information may be obtained by addressing the Secretary-Treasurer, Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, New York.

AN INVITATION

The Woman's Auxiliary to the Southern Medical Association will meet in San Antonio, Texas, November 13th to 16th.

Headquarters for the women will be in the St. Anthony Hotel, where all meetings, luncheons, and dinners will be held.

It is earnestly desired that our women of the South will make every effort to attend this meeting "en masse". Your presence will not only help the meeting but will be a great inspiration to you yourselves. San Antonio is delightful and everything possible is being done to make your visit enjoyable.

A cordial and pressing invitation is extended to everyone to attend the Auxiliary luncheon on Wednesday, November 14th, to meet Mrs. Robert Tomlinson, National Auxiliary President, and other distinguished guests.

Most cordially yours,

MRS. Southgate Leigh,
President.

DOCTOR EUGENE L. EVINS

Dr. E. L. Evins, pioneer physician of Wilburton, died August 31st at St. Mary's Infirmary, McAlester, after a two weeks' illness.

Dr. Evins was born in Eddyville, Kentucky, in 1866; moved to Dardenelle, Arkansas, in 1868, where he received his preliminary education. He graduated from Kentucky Military Institute, Frankfort, Kentucky. In 1892 Dr. Evins graduated from Tulane University, moving back to Dardenelle, where he began the practice of medicine. In 1903 he located at Wilburton where he continued the practice of medicine until the time of his death.

He was a member of the Latimer County Medical Society, State Medical Association and the American Medical Association; also a Sigma Alph Epilson.

Dr. Evins is survived by his wife and five children, three brothers and two sisters.

DOCTOR WILLIAM J. WALLACE

Dr. William J. Wallace, pioneer Oklahoma physician, died Wednesday, September 18, 1934, at his home in Oklahoma City. Dr. Wallace had been in failing health for the past year and during the past few months has not been able to attend to any of his professional duties.

He graduated from the medical department of the University of the South at Shawnee, Tennessee, in 1901; moved to Oklahoma, locating in Chandler, forming a partnership with Dr. W. G. Bisbee, now of Bristow. In 1906 Dr. Wallace took up the specialty of urology and has been a leader in this particular line of work for more than thirty years. As a member of the Oklahoma State Medical Association he has contributed liberally, not only to the scientific work of the Association, but to all the calls of organized medicine.

The funeral was held at St. Luke's Methodist Church with burial in Memorial Park. Active bearers were Dr. W. K. West, Dr. E. S. Lain, Judge Albert Hunt, Hulbert Clark, Dr. J. M. Alford, and Early Love. Honorary bearers were Dr. LeRoy Long, Sr., Dr. Arthur W. White, Dr. Anson Clark, Hugh Johnson, Harry Wolfe, and Arthur King.

In Dr. Wallace's death the Oklahoma State Medical Association has lost a faithful worker; the medical profession a practitioner of high ideals and the urologists of the Southwest a leader in their particular branch of the profession.

THE THERAPY OF THE COOK COUNTY HOSPITAL: THERAPY OF ERYSIPELAS

Bernard Fantus, Chicago (Journal A. M. A., July 21, 1934), states that isolation from surgical patients is desirable and from obstetric patients is imperative, but quarantine otherwise is not required. The period of isolation should continue until all local lesions are healed. Disinfection of the hands and of the instruments of physicians and of nurses taking care of a patient with erysipelas is necessary. The organisms may persist in the patient for a long time in sinus or nasal discharges, which accounts for the tendency to recurrence in those who have suffered from the disease. In such carriers even the slightest traumatism, especially about the nose, should be prevented as much as possible. Ultraviolet irradiation of the area involved and of the normal adjacent skin at least two inches beyond the border should be done. The mercury quartz burner is used. The rays must be direct, so as to strike the diseased area and adjacent skin at right angles for a duration of ten minutes at a distance of 12 inches. In infants and very young children the time may be reduced to five minutes and occasionally to three minutes. If the area of erysipelas shows evidence of spreading, a second treatment will be necessary. Usually one intense treatment suffices. Roentgen rays, 100 kilovolts, unfiltered, in moderated doses (not over one-fourth erythema dose) should be applied and the application repeated not more than once on the second day, if results have not been satisfactory. A 2-inch margin of apparently uninvolved skin is included, in order to treat all infected areas. Roentgenotherapy is not advisable in the diabetic, the nephritic and young children. A barrier consisting of a narrow band of contractile collodion all round a small lesion may be effective. The band must be applied thickly enough to produce a deep depression about two inches from the margin. Evaporating lotions, applied ice cold by means of uncovered compresses, give relief to the hot burning sensation, which may be still better ameliorated by the addition of 1 per cent phenol. The solution of aluminum acetate, diluted 1:8, is preferable for moist areas. Administration of erysipelas antiserum should be preceded by an intracutaneous test of 0.1 cc. of the serum diluted 1:10. If the test is negative within fifteen minutes, one may inject the remainder of the contents of the ampule. The dose may be repeated daily for three days. If the test is positive, it might be well to use convalescents' erysipelas serum rather than the serum derived from the animal, in amounts varying from 40 to 100 cc. Restraint is not infrequently necessary, as acute delirium may supervene. A hypnotic may be required for obstinate insomnia or stimulation for collapse.

RESPONSE OF PERITONEAL TISSUE TO DUSTS INTRODUCED AS FOREIGN BODIES

John W. Miller, R. R. Sayers, D. C., and William P. Yant, Pittsburgh (Journal A. M. A., Sept. 22, 1934), state that the tissue of the peritoneal cavity responds actively to a dust introduced as a foreign body, and this response is of such a character that it may be used as a basis for the classification of industrial dusts with reference to their pneumonoconiosis producing properties. This response falls into three groups: one of absorption, one of proliferation and one of inertness. While, in these experiments, animals were kept on test for as long as 360 days, the response is sufficiently well marked in ninety days to determine the type of reaction, and often conclusions can be reached in thirty days, particularly if the reaction is one of absorption or proliferation. The reaction elicited by each dust was constant and uniform in all the animals injected with that dust. The experiments of long duration reported here confirm the results noted in a previous paper. It appears that this response of the peritoneal tissue to various dusts can be used as a test to determine the possible harmfulness of an industrial dust.

PRACTICAL COMPARISON OF SOME INSTRUMENTS USED IN ORTHOPIC TRAINING

George P. Guibor, Chicago (Journal A. M. A., Sept 22, 1934), discusses the value, indications for their use and the results to be obtained with (1) instruments depending on the use of prisms to produce the superposition of images; (2) instruments depending on the reflection by mirrors to produce the superposition of images; (3) combinations of 1 and 2; (4) instruments depending on the projection of light forms on a screen to produce the superposition of images. He states that no instrument will replace personal supervision and hard work in the training of fusion, the checking of progress and the determining of suppression. All instruments have defects and limitations which are apparent only after orthoptic training has been attempted over a period of time with such equipment. As the instrument becomes more technical and mechanical it requires more personal supervision and its practical uses can be less easily varied to suit individual cases. The tendency to make use of elaborate and psychologically impressive instruments should be discouraged unless such equipment accomplishes definite results not obtainable with more simple apparatus.

ABSTRACTS • REVIEWS • COMMENTS AND CORRESPONDENCE

EYE, EAR, NOSE and THROAT

Edited by Marvin D. Henley, M.D.
911 Medical Arts Bldg., Tulsa

Diagnosis and Treatment of Tubercular Parenchymatous Keratitis. (Diagnostico Y Tratamiento De La Queratitis Parenquimatosa-Tuberculosa.) Angel Moreu and Antonio Prior. Archivos De Oftalmologia Hispano-Americanos, January, 1934.

In a twelve or fourteen thousand word original manuscript tubercular parenchymatous keratitis is discussed in great detail. Ocular tuberculosis, except in very rare instances, is endogenous and secondary to another tuberculous source of the body which turns the bacillus or its poisons into the circulatory current. The primary source frequently gives no clinical symptoms of any kind, so that, with the exception of ocular lesions, the patient appears completely healthy. It is not rare to observe both eyes affected at the same time by the sickness, following the law that if there are several sources of the tuberculosis they seize by preference on the same tissues.

Formerly tuberculosis was considered the main cause of keratitis. Today it is known (through the works of Hutchinson) that this is not so, since the greater number of cases is of etiological hereditary infection and those of tuberculous origin represent only ten per cent as many. The poisons, as soon as they enter into contact with the histological ingredients of the parenchyma, change them, the cells become set, the fibres swollen, are charged with fine granulations and degenerate. These degenerated elements have lost their peculiar quality: transparency. The lymphatic interlaminary canaliculos are full of an albuminous mass finely granulated which contain cells, many fibres and their products of disintegration. The corneal surface becomes blurred and irregular, like the rind of an orange. The endothelium of Decemet's membrane is scaly. Under the influence of the poison which reaches the cornea by way of the blood stream the episcleral vessels are dilated forming a circle around the cornea, a ciliary injection. Principally leucocytes pass the system of interlaminary canaliculos and slowly and progressively infuse the cornea from the outside to the center.

Iritis and cyclitis are frequently present due to the vascular relations which exist between the cornea, the iris and the ciliary body. The general diagnosis of keratitis is usually very easy, but the etiological diagnosis is beset with difficulties. The clinical diagnosis is made by means of exploration with natural light, focal light, biomicroscope, tonometer, ophthalmoscope, etc. Reactions to tuberculin, alcobayo, etc., are used from the biological standpoint. The current of the aqueous humor, according to the authors, moves before the anterior face of the iris from down upward, and by the back face of the cornea in the opposite course. This current is explained by the difference in temperature which exists between the iris (warm) and the cornea (cold). The systematic study has revealed the fact that in keratitis of tubercular origin the aqueous humor contains a greater number of solid bodies and the current is slower than in those of syphilitic origin.

Some authorities consider tubercular parenchymatous keratitis seconardy to a similar infection of the uvea. Credit for the tuberculin as a diagnostic remedy, is given to A. J. Samogloff, of Charcow. He states that if there is no focal reaction of the uvea there is no modification of the ocular tension. The change of the ocular tone may serve normally more or less like temperature for the dosification of the tuberculin. He advises taking the tension at nine, eleven and one in the morning, and three, six and eight at night, to get a true tonometric curve. The first day the tension is maintained at normal, the second day there is a tendency to lower, the third day this tendency is accentuated even more and the following day decreases, delaying four or five days in returning to normal. The value of the intradermal skin test is also discussed along with the different preparations and dosage of tuberculin now available. These are of particular value in prodromal stage. From the clinical point of view the period of invasion and infiltration is really the first.

The functional disturbances are in proportion to the degree of infiltration. The visual disturbance, usually slight at first, may be the first thing which attracts the attention of the patient. It usually takes the cornea a few weeks and sometimes even months to be totally invaded, though there are cases in which it has happened in a few days. When infiltration has completely invaded the cornea, a period of vascularization follows. This is not to be confused with pannus, which is a superficial vascularization which may accompany several diseases of the conjunctiva. This vascularization as here described is a defense phenomena, which constitutes the start of healing. It is repeated several times in this paper that tubercular parenchymatous keratitis is in reality an inflammation of the cornea, iris and ciliary body. De Lapersonne designates these processes as an "anterior segmentitis." After the period of reabsorption many times an examination reveals evidence of choroiditis, etc., which was undoubtedly active during the recent inflammatory process. The treatment is divided into local and general. Of primary importance is the instillation of one per cent atropine each twenty-four hours, watching the tension. Next in importance is a series of phototherapy, local and general. The principal effect of phototherapy is undoubtedly the vascularization which follows its application. The principal cause why this disease is so resistant to all treatment is in the lack of veins in the cornea which keep the medicines from working against the bacilli and their toxins with proper energy. Intramuscular injections of salts of gold (alocrisin, sanocrisin or orosanil) are given according to the detailed outline found in this article.

Lopion (a salt of gold) is the preparation used for subconjunctival and anterior injection. Slit lamp and corneal microscope reveal a precipitate the day following the injection, which disappears little by little during successive days until not the slightest trace remains. Hepatical opotherapy can be used either internally or hypodermically. It goes well as a

companion treatment with salts of gold but should not be used in cases of toxic anemia. In the periods of rest cod liver oil, iodine preparations, arsenic preparations, vitamins, etc., are given. In the period of reabsorption ionotherapy is useful as well as a pomade of yellow oxide base or tiosinamin and dionin base. If ocular hypertension appears during the treatment the atropine is suppressed and levoglaucosan is used. Douches of steam and the use of smoked glasses is also recommended. The radiotherapy treatment of this disease presents the inconvenience of necessitating intimate collaboration between the oculist and the radiologist, a thing which is not always easy.

Meniere's Disease. Walter E. Dandy, M.D., Baltimore. Archives of Otolaryngology, July, 1934.

Accompanied by a voluminous chart, audiograms and illustrations forty-two cases are reported with symptoms, objective findings and treatment. The author has previously shown Meniere's disease to be permanently curable. He is now doing a hemisection of the auditory nerve, instead of a total section. This saves what, if there is any, of the residual hearing. The etiology and pathology of this disease remains idiopathic. The basic syndrome is a sudden terrific dizzy attack, accompanied by nausea and vomiting, plus deafness and tinnitus in the affected ear. The patient lives in constant horror of a recurrence. It is perhaps one-fourth or one-fifth as frequent as trigeminal neuralgia—relatively common. The disease is most prevalent between the ages of forty and sixty; it rarely begins in youth or extreme old age. The attacks are never fatal by themselves alone. This series of cases show a predilection for males, 62%; it occurred on the left side in 70% of the patients. The deafness on the affected side is progressive so that by the time the patient has decided to have something done for the relief from the more alarming symptoms there is little hearing left.

In regard to the order of occurrence of deafness, tinnitus and dizziness there is no set rule. They may occur either before or after one another or simultaneously. Tinnitus may be bilateral but is usually unilateral. It varies in resonance from the roar of a train to the highest pitch of a violin. Nausea and vomiting may be present one time and the next time in the same patient be absent. Vomiting is rare. The attacks vary in frequency and duration. At first they are as a rule infrequent, but as time goes on they increase in force and frequency. There seems to be no particular factor that precipitates these attacks—they even sometimes start while the patient is peacefully sleeping. The onset of the dizziness is as sudden as that of an epileptic seizure. No case was found that did not have impaired hearing. The audiometer curves are more or less characteristic, showing a low, flat, straight line. Of other signs and symptoms, the most common complaint was a queer sensation at, or about, the ear, and always on the same side. Headache was the next most frequent symptom. Ocular confusion such as diplopia, etc., was not uncommon.

The diagnosis is made by the appearance of the characteristic symptoms, that is, recurring dizzy attacks, partial deafness on one side and tinnitus on the side affected. In pseudo-Meniere's disease the attacks are exactly like those of Meniere's disease but there is no defect in the hearing. Cerebral arteriosclerosis and other dizzy attacks whose etiology may or may not be known have bilateral tinnitus and deafness. A cerebropontine tumor may cause dizziness, which is of short duration, when the head is turned or the posture changed. Aneurysm of the basilar artery may cause deafness and tinnitus but rarely dizziness that in any way resembles that of an attack of Meniere's disease. Neither do acoustic tumors produce a similar dizziness. The differential diagnosis must be made on subjective symptoms. If the patient has a bilateral deafness the determining factors in choosing the site of operation are the side which has the most discomfort and tinnitus. The question is raised as to whether Meniere's disease is ever bilateral and if so why does a unilateral hemisection abolish attacks and symptoms. This brings up again the interesting question of the etiology of this disease. The operation is described quite fully and beautifully illustrated. Some of the sequalae following the operation are: Injury to the facial nerve, transient Bell's palsy, diplopia, transient nystagmus, transient vertigo and postoperative tinnitus. There are no available post mortem reports on this disease. The effect on the hearing of a partial section of the auditory nerve is to prevent a further loss. The author advises operating on the patient in the early stages of the disease.

Comment: A similar procedure was carried out and like results were obtained by H. Cairns and W. Russell Brain in a report of four cases in the Lancet, May 6, 1934.

The Interrelationship of Sinus Disease and Bronchiectasis With Special Reference to Prognosis. Dr. Louis H. Clerf, Philadelphia. The Laryngoscope, July, 1934.

Granting the interrelationship between the bronchiectasis and sinus disease it is of interest to the bronchoscopist and rhinologist to ascertain the result of the knowledge. Through original work and observance it is generally agreed that a nasal sinus infection with bilateral bronchiectasis is more frequent than the unilateral bronchiectasis with the same infection. Of the four ways of infection the lymphogenous and aspiratory routes are the most important. By using a solution of argyrol in the nose, which the patient snuffs, small spots of discoloration will be seen on the vocal cords and ventricular bands and later traces of argyrol can be found in the tracheal secretion. While it is possible for sinus infection to be secondary to bronchiectasis the infrequent occurrence does not substantiate this belief. Statistics give the relative frequency of the occurrence of bilateral bronchiectasis and nasal sinus infection from fifty-five to one hundred per cent. Some men have reported as high as one hundred per cent, while the author in a series of two hundred cases of bilateral bronchiectasis reports 82.4 per cent. Not infrequently a chronic cough is tentatively diagnosed as bronchiectasis from the x-ray findings.

It is doubtful whether or not an acute sinus infection will produce a bronchiectasis, but this, imposed upon an acute bronchial infection such as bronchitis, pneumonia, influenza, etc., is the ideal situation for the development of a bilateral bronchiectasis. From the frequent relationship between sinus disease and bronchiectasis it is evident that a nasal examination is always necessary, when there is an unexplained cough of long duration, to determine whether or not a sinus infection is present. Lower respiratory symptoms should be watched for in patients having sinus disease.

The prognosis of bilateral bronchiectasis is poor. Clearing the sinus infection affords the patient a certain amount of relief but the course of the bronchiectasis is not greatly influenced by this after it is once firmly established. The rhinologist renders his greatest service here in the prevention of bron-

chiectasis. Chronic bronchitis, although considered the most common cause of bronchiectasis is not a primary disease, so its cause must be ascertained. Some rhinologists believe that the treatment of suppuration of the nasal accessory sinuses merely relieves the symptoms for the time being, which is no doubt beneficial, but their real value in the type of case under discussion is questioned.

Since the present method of caring for chronic sinus disease is apparently unsatisfactory to both the patient and the physician, it is necessary for the rhinologist to find a means to give the proper relief in cases which show a general sepsis, in those with local signs and symptoms and in cases of secondary bronchial infection and asthma. Chronic coughs which have been diagnosed as tuberculosis, have recovered completely after adequate sinus treatments. In adults a cure of definite bilateral lower lobe bronchiectasis is seldom accomplished, but if the proper sinus treatment in connection with bronchoscopy, postural drainage, intralaryngeal instillations and vaccine therapy, is given, the patient is made more comfortable. In children better results are obtined. Endless time, patience in building and maintaining the child's general resistance in the highest degree possible will produce the desired result.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

Osteochondritis Dissecans Capitula Humeri. N. Aage Nielsen. Acta Orthop. Scandinavico, IV, 307, 1933.

This monographic article of 140 pages reviews the literature of joint mice, beginning with Pare', and then analyzes the writer's cases in detail. He has observed 133 patients with osteochondritis dissecans of the capitellum, a total of 168 elbows of which fifty-six were operated upon. Roentgenographic examination of 1000 males taken at random from the vicinity showed an incidence of this malady of four and nine-tenths per cent. From this wealth of material the writer arrives at numerous conclusions, some of which are as follows:

Osteochondritis dissecans capituli humeri is almost entirely limited to males, and is most common among those engaged in physical work. Trauma plays no definite etiological role, and there is no evidence to support the theories that endocrine disturbances, nervous disorders, or rickets are responsible. There is a striking similarity between this disease and coxa plana, Kohler's, and Kienbock's diseases. It is an asceptic bone necrosis occurring at a definite location, often bilaterally symmetrical, at a certain period in the development of the individual, almost always between the ages of thirteen and seventeen, and with a definite relation to sex and heredity. Subjective symptoms are not always present. Operative removal of free bodies is indicated when they cause pain or disability, but good results cannot be ascribed solely to the operative procedure, for symptoms may disappear with spontaneous healing. There is no justification for the theory that operation lessens the extent of the deforming arthropathy.

The First Stages of Coxa Plana. Henning Waldenstrom. Octa Orthop. Scandinavica, Vol. I, 1934.

After twenty-five years of writing on the subject of coxa plana, Waldenstrom contributes this study of the earliest stages of coxa plana. He divides the development of the lesion into a pre-coxa-plana stage, the initial stage lasting six months to a year, and the succeeding stage of fragmentation, lasting two to three years. In his studies are included pathological specimens from a boy who died at fourteen years of age after suffering for eight years with coxa plana. The writer also presents numerous serial roentgenograms, some of them taken several years before the onset of the bone changes. He finds that the flexion-abduction position of Lauenstein shows the early changes much more rapidly than the anteroposterior view.

Contrary to the views of Murk Jansen and Calot, the writer finds that coxa plana develops in hip joints which previously have been normal. This is shown in a case of bilateral coxa plana where the second hip, which is normal in the first two roentgenograms, shows the typical changes after three years. The symptoms are present several months before the roentgenograms show changes. The earliest diagnostic sign is flattening of the epiphysis. This has been observed by the writer one month after the appearance of symptoms. The distance from the medial part of the epiphysis to the bottom of the socket, i. e., the lateral leg of the U-shaped figure, is also greater than normal. This distance increases with the progression of the disease. At first the shape of the acetabulum is normal. Later it changes to adapt itself to the deformed head. When the adaptation is complete the distance of the epiphysis to the bottom of the acetabulum becomes normal again.

Union of Pathological Fractures Following Metastatic Hypernephroma. Edwin L. Rypins. Am. J. Cancer, XX, 601, March, 1934.

The author reports a case of a patient forty-six years old with a large hypernephroma of the right kidney, treated by nephrectomy. About a year later an extensive osteolytic tumor appeared in the midpart of the left ulna which was treated with 1000 roentgen units. The patient later sustained a pathological fracture of the tibia through another metastatic focus. No x-ray therapy was used over the tibia. Six months later roentgenographic examination showed definite healing of both the tibia and the ulna, with bony union of the pathological fractures.

In discussing the case the author states that a careful search of the literature failed to disclose any other case of metastatic hypernephroma of the skeleton which showed union following pathological fracture. Radiation therapy may have influenced healing of the fracture of the ulna, but the tibial fracture healed without such treatment.

Fractures and Dislocations of the Tarsal Bones. Philip D. Wilson, Southern Med. J., XXVI, 833, 1933.

This paper is based upon a study of 4,536 cases of fractures and dislocations treated at the Massachusetts General Hospital between 1923 and 1930. In practically two per cent of the cases the tarsal bones were involved.

Severe cases of fracture of the os calcis with involvement of the subastragalar joint are best treated by subastragalar arthrodesis at the end of three weeks, unless a very accurate reduction has been obtained by manipulative methods.

The author stresses the importance of careful diagnosis, accurate reduction, and proper after-care for successful results in these important weight-bearing structures.

INTERNAL MEDICINE

Edited by L. J. Moorman, M.D., 1200 N. Walker, Oklahoma City; C. E. Bradley, M.D., Medical Arts Building, Tulsa; Hugh Jeter, M.D., 1200 N Walker, Oklahoma City

By C. E. BRADLEY, M.D.

A New Auxiliary Treatment for Impetigo Contagiosa. Lester Hollander, M.D., and Joseph J. Hecht, M.D., Pittsburg. American Journal of Diseases of Children, Vol. 48, No. 2, August, 1934, Pages 269-271.

The contagious and auto-inoculable character of pyogenic infections of the skin causes a great deal of inconvenience, especially in school children, who are excluded from the class-room when a diagnosis of pyogenic infection is made.

The most important of the group of pyogenic infections is impetigo contagiosa, which is caused by the invasion of the upper strata of the skin by streptococci or staphylococci.

The control of the spread of the infection has been very difficult because the use of occlusive dressings or no dressing is conducive to the dissemination of the infection. We have found an occlusive antiseptic dressing, metaphen 1:500 in flexible collodion, which is very satisfactory.

After the skin around the lesion has been thoroughly washed with soap and dried, the lesion is painted with several layers of the metaphen-collodion mixture. In twenty-four hours the easily removable layers are removed with a tissue forceps. The mixture is reapplied over the adherent layers. On the third day the procedure is repeated. All the metaphen-collodion mixture with the underlying encrustation is removed on the fourth day. If the underlying skin is dry, it is anointed lightly with 2% ammoniated mercury; if it is still moist, the metaphen in collodion treatment is repeated for three days.

We have found metaphen 1:500 in collodion so satisfactory that we present it as an auxiliary treatment for impetigo contagiosa, eczema, and infectious aczematoid dermatitis.

Lymphatic Leukemia Resembling Rheumatic Fever in a Child. Report of a Case, By Lucy Porter Sutton, M.D., and Olive Bosworth, M.D., New York, New York. The Journal of Pediatrics, Vol. 5, No. 1, July, 1934, Pages 61-67.

The variety of symptoms associated with the onset of acute leukemia in children often makes the diagnosis obscure.

In six cases from the literature, between 1926-1933, the outstanding symptoms were rheumatoid pain or swelling; these cases bear a striking resemblance to the case presented by the authors.

The case cited from the Children's Medical Service at the Bellevue Hospital, New York City, was of a white girl, two years-eight months old. Because recurrent joint symptoms was the predominant feature of the case, the true nature of the disease was not discovered until the third admission of the child to the ward. At this time, six months after the first admission, generalized lymphadenopathy was present. The initial diagnosis of rheumatic fever, which had been doubtful because of the lack of heart symptoms, was ruled out and a diagnosis of lymphoid leukemia confirmed by a biopsy of a lymph node.

Upon admission the child's blood count was essentially normal: hemaglobin 82%; red blood cells 4,900,000; white blood cells 7,200; polymorphonuclears 50%. Six months later the count had dropped; hemaglobin 50%; r.b.c. 2,500,000-3,000,000; w.b.c. 14,000. The terminal count was: hb. 20%; r.b.c. 1,-000,000; w.b.c. 2,100. Polymorphonuclears were decreased at all times except for a brief rise after a transfusion; small lymphocytes predominated. Platelets were normal until just before death when they were decreased. Permission for an autopsy was refused.

Five transfusions, and seven x-ray treatments were given, but the course was steadily downward.

This case shows that joint symptoms may be the prominent feature in a picture of acute leukemia in a child, and that an absence of evidence of acute carditis in the presence of polyarthritis, in a child under three years of age, suggests that it is not of rheumatic origin.

The Differential Diagnosis of Acute Poliomyelitis. III. Clinical Studies of Poliomyelitis. John Fitch Landon, M.D., New York, New York. Journal of Pediatrics, Vol. 5, No. 1, July, 1934, Pages 16-28.

During the epidemic of poliomyelitis in 1931, thousands of cases were admitted to various institutions with a diagnosis of poliomyelitis and discharged with a different diagnosis. For this reason a number of conditions which might be confused with poliomyelitis will be pointed out, and the criteria employed in diagnosis analyzed with special reference to the cell count.

Diagnosis in most of these cases was presumably made on the cell count and a history of contact with a definite case of poliomyelitis.

It is well to consider the criticisms of several competent workers of the acceptance of a spinal fluid count of 10-12 cells as conclusive corroborative evidence in a suspected case of poliomyelitis. These workers have shown that pleocytosis may occur in a number of other diseases in which the onset is characterized by signs of meningeal irritation. One case of tonsillitis was found to have a spinal fluid cell count of 172. Several hundred other cases of various conditions with pleocytosis were cited.

The differential diagnosis of various conditions mistaken for poliomyelitis will now be considered under two headings: (1) Those exhibiting evidence of involvement of the central nervous system without demonstrable paralysis; and (2) those showing paralysis or pseudo-paralysis.

(1) During inter-epidemic times early differentiation between certain types of poliomyelitis and tuberculous meningitis is practically impossible. In both conditions there may be marked hyperesthesia and drowsiness, which is less profound in poliomyelitis. The onset is commonly more sudden, and vomiting, signs of meningeal irritation, and loss of reflexes earlier in poliomyelitis. In tuberculous meningitis the pulse is apt to be more irregular but slower, and the temperature lower but more protracted, than in poliomyelitis. The spinal fluid findings are the same in both conditions: clear, colorless or ground glass, web or film formation, albumen, and moderate increase in cells with mononuclears predominating. Over 1,000 cells is suggestive of poliomyelitis. The sugar content is commonly high in the encephalitic type of poliomyelitis while subnormal or low figures are found in tuberculous meningitis, especially as the disease progresses. The blood sugar is usually high in tuberculous meningitis, while the spinal fluid chlo-

rides are low, considered pathoneumonic by some workers. The final diagnosis must depend upon isolating tuberular bacilli or demonstrating characteristic palsies in poliomyelitis.

Although epidemics of meningococcus meningitis usually appear in winter, and poliomyelitis in warm weather, there are occasional sporadic cases of both conditions which present considerable difficulty in early diagnosis. In meningitis the neck is much stiffer, Kernigs and Brundzinski's signs more marked, there is less hyperesthesia, and the psychic disturbances, especially delirium, more pronounced than in poliomyelitis. The most characteristic difference is the presence of herpes labialis in meningococcus meningitis, a sign rarely found in poliomyelitis. The spinal fluid of meningococcus meningitis is characteristically turbid, usually containing several thousand polymorphonuclears. Usually the intracellular diplococcus, which is gram negative, may be demonstrated.

There is usually a history of otitis media, pneumonia, or skull trauma in pneumococcus or streptococcus meningitis. Meningeal signs are more marked than in poliomyelitis and the spinal fluid is characteristically turbid or purulent—yellow in streptococcus and greenish in pneumococcus meningitis. The respective caustive organisms are easily demonstrated

Influenzal, colon bacillus, and staphylococcus meningitis must be diagnosed by the identification of the respective organisms in the spinal fluid. In syphilitic meningitis, and there is a variable increase in cells, albumen and globulin, with a positive Wassermann reaction, and typical syphilitic colloidal gold curve.

Acute rheumatic fever may be differentiated by the more protracted febrile course, absence of palsies or any alteration of reflexes, by the presence of normal spinal fluid, and finally by the favorable responses to salicylates. Rheumatic nodules may be demonstrated at times.

Rheumatic toricollis may be confused occasionally with poliomyelitis because of the painful neck.

The vomiting and abdominal pain of an early appendicitis may simulate the onset of poliomyelitis; occasionally the situation is reversed and a poliomyelitis operated for appendicitis as in a case cited by the authors.

Tetanus may be confused occasionally with early poliomyelitis, but negative spinal fluid findings, and the development of typical trisms and "risus sardonicus" will serve to differentiate it.

(2) Peripheral neuritis may be differentiated from poliomyelitis by history of chronic alcholism, lead, arsenic, mercury poisoning, or by a recent attack of diphtheria; by the more gradual development of paralysis, the benign course of the paralysis, and by negative spinal fluid findings. Wickman says: "If decreased perception of all forms of sensation really exist, or if the sense of touch be diminished and tenderness on pressure be present, the case is one of neuritis."

Traumatic conditions such as fracture, sprain, epiphysitis, etc., any infection in the bone or joint may be demonstrated by x-ray of the part. The absence of the usual invasive symptoms of meningeal irritation characteristic of poliomyelitis, and the absence of spinal fluid findings aid in differentiation.

Hysteria is often present in those who have been associated with poliomyelitis cases in times of epidemics. It may be differentiated by the fact that sensory changes are usually marked, the reflexes are present, and there is no atrophy or fever. The patient's psychic state may be recognized as abnormal.

History, course of the disease, and spinal fluid findings will serve to differentiate facial paralysis caused by poliomyelitis from that caused by other conditions such as middle ear infection.

The fact that loss of all sensation accompanies transverse myelitis, either of traumatic or infectious origin, differentiates it from poliomyelitis.

By HUGH JETER, M.D.

The Inter-relation of Cutler, Linzenmeier & Westergren Sedimentation Tests. Esther M. Greisheimer, M.D., Ph.D.; Alan E. Treloar, Ph.D., and Mary Ryan. The American Journal of The Medical Sciences, February, 1934, Page 213.

The authors report the results of their investigations extending over a period of several years. The results which are somewhat technical seem to justify the conclusions as follows:

Blood sedimentation in 99 men and 102 women, selected without regard to age or health, from university students and ambulatory patients, has been studied to establish the inter-relationship between the Linzenmeier, Cutler and Westergren methods. The average sedimentation in one hour for "normal" subjects appears to be reasonably concordant for the three methods despite the wide differences in tube width, anticoagulant concentration and length of fluid column, although the differences between the means for the three methods are significant statistically. The average sedimentation at one hour for the women is approximately double that for men.

"The dispersals of individual cases about the lines of average relationship, although not studied in detail, are clearly greater than those ascribable to errors inherent in the techniques. The conclusion is clear that sedimentation measures for human blood are, in part, specific for the technique employed. Standardization of a generally acceptable method for blood sedimentation would prove most advantageous for clinical work."

Discussion: This is another step toward the standardization of a valuable test. Much confusion exists in regard to sedimentation of blood and justly so because of the many methods used and the discordance in results. The tables and charts given are interesting.

The Metastases of Carcinoma to the Spleen. Shields Warren, M.D., and A. Hobson Davis, M.D. The American Journal of Cancer, July, 1934, Page 517.

The author, in a study of 1140 cases of carcinoma which came to autopsy, found only 4% showing metastases to the spleen. They reviewed the results of many other autopsy reports, including 7548 autopsies by nine different authors, the results ranging from 0.3% to 4.8%. Even in advanced carcinomatosis splenic metastases is rare.

If the spleen has antineoplastic properties, in the form of ferments, harmones or phagocytes it has never been proven. The fact that there are no afferent lymphatics to the spleen probably accounts for the lack of metastases. Other theories do not seem tenable.

Fifteen per cent of 193 carcinomata of the breast gave metastases to the spleen or almost twice as frequently as to the kidneys. On the other hand, car-

cinoma of the cervix metastastized almost three times as frequently to the kidney as to the spleen. Four and six-tenths per cent of all carcinoma cases showed metastases to the kidneys and compared with four per cent to the spleen.

Discussion: It appears that these authors, through their investigations, have beautifully substantiated the following important premises:

1. That carcinoma metastases to the spleen is peculiarly infrequent.

2. That the spleen has no antineoplastic properties, but that metastases is rare because of the lack of afferent lymphatics to its pulp. The motility of the spleen may also be a factor.

Further Studies on Granulopenia With a Report of Twelve Cases. Stewart R. Roberts, F.A.C.P., and Roy R. Kracke, Atlanta, Georgia. Annals of Internal Medicine, August, 1934, Page 129.

These authors use the term granulopenia and designate whether complete or incomplete. Other synonyms are agranulocytosis, agranulocytic angina, agranulocythemia, hypogranulocytoses, primary granulopenia and malignant neutropenia.

Complete granulopenia is considered a rare disease and incomplete granulopenia a comparatively common state.

Complete granulopenia is discussed. The mechanism is: first, bone marrow failure; second, about four days later blood stream manifestation; third, sudden clinical onset with weakness, prostration, fever and later exhaustion and delirium; fourth, loss of immunity and protective mechanism with consequent bacterial invasion and sepsis; fifth, granulocytes or death.

It occurs at any age, but thirty to fifty years the commonest. It is common in the white race and about two females to one male. The majority of cases are from the middle or upper class. Many investigators have noted a predilection of the disease for physicians, their families, nurses, medical students and other of the medical group. The cause is unknown and various suggestions by students of the disease are as follows:

1. Specific bacterial etiology; nothing conclusive discovered.

2. Abnormal menstrual states.

3. Certain anemias, aplastic, pernicious and secondary.

4. After leucopenic diseases as influenza.

5. Certain drugs, as arsphenenamine, anidopyrine and benzene ring compounds.

6. Exhaustive states, induced by toil, worry and mental effort.

7. Certain senile states in asthenic women.

Twelve interesting cases are reported.

Treatment: "We have used radiation, transfusion, liver extract, pentose necleotide and foreign protein to no avail. We have seen no result and only disappointment from their use. We have had no experience with adenin sulphate. We see no reason why it should be used."

Discussion: Congratulations to these authors for such a timely, complete, concise and frank report.

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
714 Medical Arts Bldg., Oklahoma City.

Intestinal Obstruction. By Karl A. Meyer and Julius L. Spivack. Annals of Surgery, July, 1934, Page 148.

In this excellent and thorough article on this subject Dr. Meyer and his associate make the following conclusions:

1. The mortality of surgically treated cases of acute intestinal obstruction has been reduced very little in the last 25 years.

2. In his series of cases the mortality was 48.6 per cent.

3. The high mortality they think is due to late surgical interference when the triad of symtpoms is present. This triad appears late when the patient is practically moribund.

4. Injection of normal salt solution, glucose, etc., cannot compensate for the damage of delay and does not influence appreciably the degree of mortality.

5. The mortality will be appreciably reduced only by early operation and this will be possible only when early diagnoses are made.

6. An early diagnosis is possible only by taking flat X-ray films routinely. This does not mean with the use of Barium or any other opaque substance. A "herring bone" appearance shows the earliest stages of obstruction, a "stepladder" appearance shows a more developed process and "fluid levels" shows the well advanced intestinal obstruction.

7. In every postoperative abdominal case in which intermittent abdominal pain arises, it is advisable immediately to take a flat X-ray film by a portable apparatus and not wait until the grave triad appears.

—LeRoy Long, Jr.

Acute Intestinal Obstruction. By Walter Moss and Elizabeth M. McFetridge. Annals of Surgery, July, 1934, Page 158.

The mortality of intestinal obstruction in the Charity Hospital at New Orleans has been reduced more than half within a period of ten years by the use of the proper pre-operative preparation, chiefly directed toward the correction of perverted blood chemistry, by the restriction of surgical procedures to those directed only toward the relief of obstruction, by the increasing use of spinal analgesia for all patients, by the use of the X-ray as a diagnostic measure, and by the shortening of the interval between the onset of the symptoms and admission to the hospital, an improvement which is clearly evident even though its occurrence cannot be explained.

The reduction of the mortality from 70.7 per cent in the five year period from 1923 through 1927 to 31.7 per cent in the three year period from 1930 through 1932 should be a matter of congratulation to the surgeon who treated the patients in the later series in the light of new discoveries and with a new conception of the disease. But a death-rate of 31.7 per cent is still too high for any illness in which such a mortality is not absolutely inevitable, as it is not in intestinal obstruction, and it is to be hoped that the addition of Wangensteen's decompression method, both as an independent procedure and as an adjuvant

to surgical measures, will still further reduce even this greatly improved mortality.

This article together with that of Dr. Meyers show the results that have been recently obtained in the treatment of intestinal obstruction at the Cook County Hospital in Chicago (where Dr. Meyer works) and at the Charity Hospital in New Orleans. These results are interesting and are informative in that they show results obtained in two of the larger hospitals in the middle west.

—LeRoy Long, Jr.

The Treatment of Fibroids. By W. C. Danforth. American Journal of Obstetrics and Gynecology, September, 1934, Page 409.

The author calls attention to the frequency of fibroid tumors, mentioning the agreed statistical estimates that after the age of 35 about twenty per cent of all women have fibroid growths in the uterus. While many of these are small and unimportant clinically, the number which require attention is sufficiently large that this type of disease constitutes an important part of the work of the gynecologist.

Dr. Danforth is discussing the result of management of these tumors in recent years at the Evanston Hospital, reporting a series of 443 consecutive cases. This series does not include, naturally, a relatively large number of cases of fibroid growths which were without symptoms and did not require treatment. It also omits patients in whom operation was primarily done for some other condition and in whom small fibroids were found.

Fibroid tumors are divided into three classes: 1. Those which need no treatment. 2. Those which may be irradiated. 3. Those which should be operated upon.

He points out the obvious fact that in the group which need no treatment, all these women should be told that examination should be repeated at intervals, because some of them who require no immediate treatment may later fall into the group where treatment is necessary because of increased size of the tumor or the onset of menorrhagia.

In the series ninety-three cases, or twenty-one per cent, were irradiated. He gives reasons why they prefer the use of radium, within the uterus, to that of x-ray. Because cases for irradiation should be chosen with painstaking care, if one is to receive satisfactory end results, and because the constant indications are so numerous and likewise so important, the author has spent considerable time discussing these contraindications to irradiation in fibroid tumor.

1. Age: The woman should be over forty and the farther past that age the better. He mentions the modern trend of reserving irradiation for the later ages, more pronounced in recent years. "It is far better that younger women should be operated upon. For them surgery is less radical than irradiation." The following table gives average ages, classified according to treatment:

All cases treated	42.1
Hysterectomy, adnexa preserved	41.6
Irradiated	47.3
Hysterectomy, adnexa removed	44.5
Myomectomy only	36.4

It will be observed that the irradiated group had an average age of 47 plus years.

2. Past or present inflammatory adnexal disease.

3. Size: Their custom is limitation of the use of radium to small growths. Their rule at the present time is growths no larger than a pregnancy at two and one-half months, whereas the previous rule was one no larger than three months. Dr. Danforth points out that this is in accord with the experience of most writers, although a few have extended the use of irradiation to larger growths.

4. Ovarian Neoplasms: If there is pathology of the uterine adnexa it is wiser to abstain from irradiation.

5. Adhesions in Pelvis: This is largely upon the basis of bowel coils being held by adhesions in a fixed situation, within the effective range of radium rays, thereby receiving serious damage. This also is a consequence to be considered in all cases which have had previous operations.

6. Submucous Fibroids: Whether they protrude into the uterine canal and are partially necrotic, or whether they have been partially extruded from the internal os, they are always infected and are not favorable cases for radio therapy.

7. Pelvic Pain: Should definitely exclude the use of radium.

8. Retrodisplacement: Dr. Danforth mentions the danger of material being spilled into the peritoneal cavity and also the possibility of adhesions. (I should like to make the observation at this time that in these cases about twenty-five per cent have retroversions and even though the blood loss from menorrhagia is adequately treated by irradiation, the patient still has abnormal pelvic pathology which will give symptoms, and operation is much to be preferred in this group if for no other, this reason alone.)

9. Radiophobia: It would not seem wise to insist upon radiotherapy when the patient fears it. It is better to treat these women surgically.

Dr. Danforth points out, however, that in careful selection of cases, with due regard to the contraindications already stated, extremely satisfactory end results will be obtained.

The author then discusses the character of procedure, if operative treatment is decided upon.

In a considerable number of cases in which pedunculated tumors extrude or are about to extrude through the cervix, it is strongly emphasized that simple removal alone is all that should be done. Hysterectomy should never follow at once. Other tumors which may be present may be dealt with some weeks later. These growths are always infected. Invasion of the peritoneal cavity is gravely dangerous.

Myomectomy, allowing the uterus to remain, has a definite field of usefulness. In younger women when the maintenance of reproductivity is highly desirable and when the relationship between the tumor and the uterus is such that it is technically possible to remove the tumor and leave a uterus which is capable of pregnancy, it should be employed. However, patients should be warned of the possibility of similar growths occurring later.

Though it is sometimes possible to remove a number of tumors and leave the uterus in excellent condition, the preconceived idea of operation should not be one to extend the procedure beyond the proper limit or to risk leaving a uterus which is the seat of many deep wounds.

The author believes that myomectomy during pregnancy is, in most cases, unwise. He prefers to allow pregnancy to proceed to term with the proper pro-

cedure at that time, feeling that conservatism during pregnancy is the safest course.

The majority of cases in this series have hysterectomy performed. He believes that the ovaries should be preserved whenever possible. "The younger the patient the more essential it is to preserve ovarian function and in our very recent work we have been even more particular than we formerly were to avoid ablation of the ovaries." It will be interesting in this direction to observe the rather high age group in which ovaries were removed. This information is contained in the table given at the first of the article.

The author next considers the question of total or sub-total hysterectomy. Their series of cases shows that only four per cent had total hysterectomy. They feel that it should be chosen only in those cases in which the cervix is notably diseased or in which some fear is felt for an early coincident malignancy. The author then quotes the incidence of a number of writers of malignancy in the remaining stump. He mentions the conclusion reached at the Woman's Hospital in New York, "at least in the hands of the average operator, the increase in the operative risk which accompanies the use of complete operation is greater than the later risk of the development of carcinoma." He mentions the obvious precaution of careful study of the cervix prior to the use of subtotal hysterectomy.

It is pointed out as far as mortality is concerned that in expert hands the mortality of total and subtotal hysterectomy is about the same, but this will hardly hold true for those whose operative experience is small.

He discusses the accepted means of treating a diseased cervix when subtotal hysterectomy is done, paying particular attention to plastic repairs of the cervix and to cauterization.

In this series of 443 cases, one death occurred, or a mortality of 0.23%. This death occurred from pulmonary embolism. The avoidance of trauma, and the minimization of blood loss are of great importance. The author points out that in clinics where a considerable amount of work is done, patients who have lost a great amount of blood will be less favorable subjects for operative work, but in this group with occasional preoperative transfusion and the reduction to the minimum of trauma and blood loss at operation, the surgical management of fibroids has become very small.

Emphasizing again the importance of preservation of ovaries where possible, the author makes valuable observations as to first leaving adequate blood supply to the ovary by avoiding operative procedure in the region of the ovarian hilum, and secondly, leaving the ovary freely mobile by not attaching the divided broad and round ligaments to the stump of the cervix.

In conclusion, appreciating the surgical treatment of fibroids today in skillful hands as a safe procedure, judgment as to the necessity for treatment, and if treatment is indicated, the selection of that method best adapted to the individual case is an important part of the duty of the gynecologist.

The discussion of this very practical paper is lengthy and excellent.

Comments: This article is abstracted in considerable detail because the subject matter is of such marked practical importance and because it is a concise review of the problems which will meet the approval of the majority of able gynecologists of today.

There are certain significant features that may be mentioned. Though in this series 21% of the cases were irradiated, it will be observed that the average age of these patients was 47.3 years. With careful observance of the numerous contraindications to irradiation in fibroid tumors, and also a studied consideration of the advisability of limiting irradiation to the very late age group, it will be found that the more careful workers are using this means of treatment in an even smaller group. This minimizes in no manner the excellent end results which can be obtained in the carefully selected cases. It, however, does put the burden of management upon the proper selection of cases for irradiation rather than upon the actual technique of the management employed.

As far as myomectomy is concerned, it also is employed less frequently than a few years ago, firstly, because the mortality and morbidity from this operation is very definitely greater than hysterectomy; secondly, it has been found that it was unwise to do an extensive mutilating type of operation, leaving a uterus which could very poorly care for a pregnancy should it result. These facts and the less frequent employment of myomectomy likewise minimize in no effect the desirability of this operation in the careful selection of cases for its employment.

The preservation of as much ovarian tissue as possible at the time of hysterectomy is very well accepted in this area. However, it is noteworthy that in certain other sections of the country considerable disregard has existed for such preservation and there is a definite trend of feeling at the present time that ovaries should be preserved wherever possible, in order to maintain their function.

The literature of the past few years has been filled with the controversy, total or subtotal hysterectomy as a choice procedure. The principal reason for the choice of total as against the subtotal procedure has lain in the possibility of co-existence or future malignancy of the remaining cervix. It has always been my opinion that the choice of one or the other of these procedures is an individual problem both as far as the surgeon's experience and as far as the individual case is concerned. However, there can be little doubt that many more total hysterectomies have been done with a consequent increased mortality than were wise or justified upon the basis of possible malignancy. This in no way influences the fact that the cervix should be carefully examined and properly treated, in the event that subtotal hysterectomy is done. It will be at once appreciated that though this is an obvious precaution, it many times is entirely overlooked.

The mortality rate experienced in this series of cases is excellent, but it is about the average that exists in well regulated clinics where careful work is performed. The mortality rate for this type of surgery certainly should remain in the neighborhood of one-half per cent or less. One cannot emphasize too strongly the importance of minimization of trauma and blood loss. The danger exists that in a realization of the reasonable safety of operative treatment of fibroid tumors, many patients may possibly be subjected to operative procedure, when in reality observation in late forties may be all that will be necessary.

—Wendell Long, M.D.

sides are low, considered pathoneumonic by some workers. The final diagnosis must depend upon isolating tuberular bacilli or demonstrating characteristic palsies in poliomyelitis.

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By HUGH JETER, M.D.

The Inter-relation of Cutler, Linzenmeier & Westergren Sedimentation Tests. Esther M. Greisheimer, M.D., Ph.D.; Alan E. Treloar, Ph.D., and Mary Ryan. The American Journal of The Medical Sciences, February, 1934, Page 213.

The authors report the results of their investigations extending over a period of several years. The results which are somewhat technical seem to justify the conclusions as follows:

Blood sedimentation in 99 men and 102 women, selected without regard to age or health, from university students and ambulatory patients, has been studied to establish the inter-relationship between the Linzenmeier, Cutler and Westergren methods. The average sedimentation in one hour for "normal" subjects appears to be reasonably concordant for the three methods despite the wide differences in tube width, anticoagulant concentration and length of fluid column, although the differences between the means for the three methods are significant statistically. The average sedimentation at one hour for the women is approximately double that for men.

"The dispersals of individual cases about the lines of average relationship, although not studied in detail, are clearly greater than those ascribable to errors inherent in the techniques. The conclusion is clear that sedimentation measures for human blood are, in part, specific for the technique employed. Standardization of a generally acceptable method for blood sedimentation would prove most advantageous for clinical work."

Discussion: This is another step toward the standardization of a valuable test. Much confusion exists in regard to sedimentation of blood and justly so because of the many methods used and the discordance in results. The tables and charts given are interesting.

The Metastases of Carcinoma to the Spleen. Shields Warren, M.D., and A. Hobson Davis, M.D. The American Journal of Cancer, July, 1934, Page 517.

The author, in a study of 1140 cases of carcinoma which came to autopsy, found only 4% showing metastases to the spleen. They reviewed the results of many other autopsy reports, including 7548 autopsies by nine different authors, the results ranging from 0.3% to 4.8%. Even in advanced carcinomatosis splenic metastases is rare.

If the spleen has antineoplastic properties, in the form of ferments, harmones or phagocytes it has never been proven. The fact that there are no afferent lymphatics to the spleen probably accounts for the lack of metastases. Other theories do not seem tenable.

Fifteen per cent of 193 carcinomata of the breast gave metastases to the spleen or almost twice as frequently as to the kidneys. On the other hand, car-

cinoma of the cervix metastastized almost three times as frequently to the kidney as to the spleen. Four and six-tenths per cent of all carcinoma cases showed metastases to the kidneys and compared with four per cent to the spleen.

Discussion: It appears that these authors, through their investigations, have beautifully substantiated the following important premises:

1. That carcinoma metastases to the spleen is peculiarly infrequent.

2. That the spleen has no antineoplastic properties, but that metastases is rare because of the lack of afferent lymphatics to its pulp. The motility of the spleen may also be a factor.

Further Studies on Granulopenia With a Report of Twelve Cases. Stewart R. Roberts, F.A.C.P., and Roy R. Kracke, Atlanta, Georgia. Annals of Internal Medicine, August, 1934, Page 129.

These authors use the term granulopenia and designate whether complete or incomplete. Other synonyms are agranulocytosis, agranulocytic angina, agranulocythemia, hypogranulocytoses, primary granulopenia and malignant neutropenia.

Complete granulopenia is considered a rare disease and incomplete granulopenia a comparatively common state.

Complete granulopenia is discussed. The mechanism is: first, bone marrow failure; second, about four days later blood stream manifestation; third, sudden clinical onset with weakness, prostration, fever and later exhaustion and delirium; fourth, loss of immunity and protective mechanism with consequent bacterial invasion and sepsis; fifth, granulocytes or death.

It occurs at any age, but thirty to fifty years the commonest. It is common in the white race and about two females to one male. The majority of cases are from the middle or upper class. Many investigators have noted a predilection of the disease for physicians, their families, nurses, medical students and other of the medical group. The cause is unknown and various suggestions by students of the disease are as follows:

1. Specific bacterial etiology; nothing conclusive discovered.

2. Abnormal menstrual states.

3. Certain anemias, aplastic, pernicious and secondary.

4. After leucopenic diseases as influenza.

5. Certain drugs, as arsphenenamine, anidopyrine and benzene ring compounds.

6. Exhaustive states, induced by toil, worry and mental effort.

7. Certain senile states in asthenic women.

Twelve interesting cases are reported.

Treatment: "We have used radiation, transfusion, liver extract, pentose necleotide and foreign protein to no avail. We have seen no result and only disappointment from their use. We have had no experience with adenin sulphate. We see no reason why it should be used."

Discussion: Congratulations to these authors for such a timely, complete, concise and frank report.

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
714 Medical Arts Bldg., Oklahoma City.

Intestinal Obstruction. By Karl A. Meyer and Julius L. Spivack. Annals of Surgery, July, 1934, Page 148.

In this excellent and thorough article on this subject Dr. Meyer and his associate make the following conclusions:

1. The mortality of surgically treated cases of acute intestinal obstruction has been reduced very little in the last 25 years.

2. In his series of cases the mortality was 48.6 per cent.

3. The high mortality they think is due to late surgical interference when the triad of symtpoms is present. This triad appears late when the patient is practically moribund.

4. Injection of normal salt solution, glucose, etc., cannot compensate for the damage of delay and does not influence appreciably the degree of mortality.

5. The mortality will be appreciably reduced only by early operation and this will be possible only when early diagnoses are made.

6. An early diagnosis is possible only by taking flat X-ray films routinely. This does not mean with the use of Barium or any other opaque substance. A "herring bone" appearance shows the earliest stages of obstruction, a "stepladder" appearance shows a more developed process and "fluid levels" shows the well advanced intestinal obstruction.

7. In every postoperative abdominal case in which intermittent abdominal pain arises, it is advisable immediately to take a flat X-ray film by a portable apparatus and not wait until the grave triad appears.

—LeRoy Long, Jr.

Acute Intestinal Obstruction. By Walter Moss and Elizabeth M. McFetridge. Annals of Surgery, July, 1934, Page 158.

The mortality of intestinal obstruction in the Charity Hospital at New Orleans has been reduced more than half within a period of ten years by the use of the proper pre-operative preparation, chiefly directed toward the correction of perverted blood chemistry, by the restriction of surgical procedures to those directed only toward the relief of obstruction, by the increasing use of spinal analgesia for all patients, by the use of the X-ray as a diagnostic measure, and by the shortening of the interval between the onset of the symptoms and admission to the hospital, an improvement which is clearly evident even though its occurrence cannot be explained.

The reduction of the mortality from 70.7 per cent in the five year period from 1923 through 1927 to 31.7 per cent in the three year period from 1930 through 1932 should be a matter of congratulation to the surgeon who treated the patients in the later series in the light of new discoveries and with a new conception of the disease. But a death-rate of 31.7 per cent is still too high for any illness in which such a mortality is not absolutely inevitable, as it is not in intestinal obstruction, and it is to be hoped that the addition of Wangensteen's decompression method, both as an independent procedure and as an adjuvant

Present Endocrine Diagnosis and Therapy. A Critical Analysis on Hormone Studies in the Female. By Robert T. Frank, Morris A. Goldberger and Frank Spielman, New York. The Journal of the American Medical Association, August 11, 1934, Page 393.

These authors call attention to the difficulty in maintaining one's footing in the stampede and the practical impossibility of planning connectedly during the panic of endocrine treatment. They call attention to their efforts since 1925 to place the study of functional endorcrine disturbances of the female sex organs on a more solid foundation and to devise methods which will permit evaluation of conditions comparable to metabolism determinations.

The material upon which their results are based, from January, 1926, till the end of 1933, include a tremendous number of tests, and they hope that publication of the large material will help to clarify some of the confusion, loose reasoning and overenthusiasm that threatens to further obscure a very complex subject.

They have then discussed briefly, but concisely, the following fields:

Methods Employed.

The Hormone Cycle in the Normal Fertile Menstruating Female.

Prepuberty and Puberty.

The Underfunctioning Ovaries, Sterility, Amenorrhea (Dysmenorrhea and Oligomenorrhea) and the Menopause.

Diagnosis.

Treatment.

These phases of the problem are so briefly and well discussed and the subject matter is so large that this article is not abstracted in complete form, but it is advised that it be read in its entirety in the Journal which is accessible to practically all doctors.

The summary of the article follows: "Quantitative hormone studies show the humoral status before and at puberty, during maturity and after the menopause.

Functional genital disturbances are of two types—underfunction and overfunction.

Both types are primarily due to disturbances of the anterior pituitary cycle, the ovarian cycle being secondarily affected.

Emphasis is placed on the accurate "size up" of the individual studied and on other laboratory aids which help in the recognition and evaluation of congenital and acquired endocrine stigmas.

Examples of spontaneous recovery without treatment are featured, as, in our opinion, they account for the majority of successes currently ascribed to endocrine therapy in functional genital disturbances of the female.

Comments: Because of the present relative lack of complete knowledge on this subject; because of the amazing rapid valuable research in this field in recent years; because of the frequency and importance of the conditions for which endocrine preparations are recommended, and because of the widespread use of potent medication, with at best very little rational indication, an article of this type by a man in the United States who has probably had more practical experience than any other, as well as laboratory research, is extremely important for all doctors. Dr. Robert T. Frank's articles upon this subject and his views are certainly extremely valuable and likely are at least one of the best means of informing one's self about a very complex situation.

It is only natural, with his tremendous experience, that he approaches certain phases of the problem with dogmatism, which is not entirely justified. However, upon the whole, his views are not only safe and reasonable, but they are based upon actual laboratory and clinical material of a tremendous character.

It is abstracted in brief form, principally to call attention to this excellent article which appears in the Journal of the American Medical Association, available to all doctors.

—Wendell Long, M.D.

BOOKS RECEIVED

Practical Talks on Heart Disease: By George L. Carlisle, M. D., Associate Professor of Clinical Medicine, Baylor University, Dallas. Cloth, Price $2.00. Charles C Thomas, Springfield, Ill.; Baltimore, Md.

For clearness, accuracy and simplicity of expression the above entitled monograph will appeal to anyone interested in the conditions of the heart and will be particularly acceptable to the general practitioner.

The manner in which Heart Conditions are divided or classified for study, with the first chapter given over to Fundamental Facts of Heart Examinations; the second chapter to Chronic Heart Disease; third chapter to Acute Heart Disease; fourth chapter to Heart Irregularities; fifth chapter to Heart Pain; sixth chapter to Special Types of Heart Diseases, makes these subjects appear in such a satisfactory sequence that the book reads like a story and maintains one's interest through its entire perusal.

REPORT OF EXAMINATION FOR LICENSES TO PRACTICE MEDICINE

Examination held at State Capitol, Oklahoma City, September 11th and 12th, 1934. The following applicants passed:

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
*McMillan, Jas, Moughan	1904	Atlee, Ark.	Univ. of Okla.	1933	Norman, Okla.
Bagley, James Alfred	1878	Jefferson Co., Ala.	Univ. of Ala.	1903	Clinton, Okla.
Gilkes, Evan A. (col.)	1900	Trinidad	Meharry Med.	1933	Ardmore, Okla.
Heffernon, Geo. A.	1908	Cohres, N. Y.	Univ. of Mich.	1933	Seminole, Okla.
Maben, Charles Sylvanus	1901	Deer Creek, Okla.	Univ. of Ark.	1933	Okmulgee, Okla.
Napper, Marvin Lee	1905	Billings, Mo.	Washington Univ	1931	Tulsa, Okla.
Sinclair, Franklin Deo, Jr.	1905	Oswego, N. Y.	Johns Hopkins	1930	Tulsa, Okla.
Binkley, James Samuel	1908	Guymon, Okla.	Harvard Med.	1932	Oklahoma City
Joyce, Reid Petree	1908	Wheatland, Okla.	Univ. of Penn.	1932	Fletcher, Okla.
Stone, Samuel Newton, Jr.	1908	Calumet, Okla.	Univ. of Penn.	1932	Edmond, Okla.
Wiley, Geo. Adrian	1904	Granite, Okla.	Northwestern	1933	Norman, Okla.
John Thompson Gray	1871	Louisville, Ky.	Louisville Med.	1898	Stillwater, Okla.

*Took the examination June, 1933, but license was not issued until completion of approved internship.

MEDICAL MEN FOR THINGS MEDICAL

"The principle that medical men should be the ones to exercise control over medical service is almost axiomatic. Yet there is confusion of thought where there could be straight thinking if all the facts were brought out and faced.

"There are those who would virtually make the physician an employee of the state. They fail to recognize the utter incompatibility between the American political system and the methods of truly professional men.

"There are those who complain about the scarcity of physicians. Yet it is a fact that while England has one doctor for 1,490 persons, France one for 1,690, and Sweden one for 2,890, there is in the United States one physician for every 780 persons.

"There are those who denounce our hospitals on the score of high charges for service, but the truth is that the cost per day of a hospital room with meals and the day and night personal ministrations required by an invalid is usually less than a well person would pay for mere room and meals in a first-class hotel.

There are those who would like to let down the bars to self-medication. Yet the fact is that during the last few generations the average span of human life has been extended ten years, chiefly through the discoveries of medical science.

"Physicians know these things. They spend years acquiring an education on the care and repair of the most marvelous mechanism on earth—the human body. But they would readily admit that this education does not qualify them for telling railroad executives how to solve transportation problems or impressarios how to stage an opera. The work of the world needs many kinds of specialized knowledge, but certain it is that each field of work will be best managed by those who know it best."—From Mead Johnson & Company's announcement in Hygeia, August, 1934.

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SKIN SENSITIVENESS TO TUBERCULIN IN PRIMARY TUBERCULOSIS: IS ITS DEGREE IN CHILDREN RELATED TO THE EXTENT OF DEMONSTRABLE INTRATHORACIC PATHOLOGIC CHANGES PRESENT?

Chester A. Stewart, Minneapolis (Journal A. M. A., July 21, 1934), observed that the average degree of skin sensitiveness to old tuberculin present in a group of infected children with negative or inconclusive chest films was essentially equal to that present in groups of cases with definite and conspicuous demonstrable intrathoracic lesions in different stages of resolution and considered characteristic and typical of tuberculosis of first infection. The mean level of allergy to tuberculoprotein produced in groups of children by chance infections is independent, therefore, of the absence, presence, scarcity, abundance, size or character of the primary tuberculous lesions demonstrable by roentgen examinations during life. The distribution of different degrees of skin sensitiveness to old tuberculin in a group of infected children consisting of cases with normal or inconclusive chest films was found not to differ essentially from that present in other cases with distinct demonstrable intrathoracic lesions deemed characteristic of tuberculosis of first infection. The curves that represent the general pattern of the distribution of different degrees of allergy to tuberculoprotein found in each group of cases are very similar. This study on living patients failed, therefore, to disclose evidence that justifies one in entertaining suspicions that children with large and intense Mantoux reactions harbor more extensive pathologic changes or have more active primary tuberculous lesions than do other children who are less sensitive to tuberculin. Groups of children with primary tuberculosis exclusively, who are dissimilar roentgenologically, are alike as far as the average group skin sensitiveness to tuberculin is concerned. Apparently soon after tubercle bacilli make their initial entry into the body and before the primary tuberculous lesions have time to resolve, allergy reaches an average group level that is sustained with little or no definite change throughout the first few years that postdate the primary infection. Changes in the size of Mantoux tests throughout the periods of increment and decline of the reactions in children with normal or inconclusive chest films roughly parallel similar changes manifested by skin reactions in other children with definite demonstrable intrathoracic lesions typical of tuberculosis of first infection.

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GASOLINE AND KEROSENE POISONING IN CHILDREN

John A. Nunn and Frank M. Martin, San Antonio, Texas (Journal A. M. A., Aug. 18, 1934), discuss the clinical and laboratory examinations in seven cases of gasoline poisoning and sixty-five cases of kerosene poisoning. The total mortality of the cases was 11 per cent. Among the kerosene poisoning cases it was 9.2 per cent, while in the gasoline cases it was 28 per cent. In the fatal cases the children lived from two to eighteen hours after the ingestion and the aspiration of these substances. All the children who died showed definite clinical evidence of pathologic changes of the lung; namely, many moist rales in both lungs, rapid, shallow respiration and cyanosis. About one-third of the patients who had swallowed a large enough quantity of the substance to become sufficiently ill to require hospitalization had also aspirated some of the fluid. The patients who aspirated, as well as ingested, one of these petroleum products presented a much graver clinical picture, owing to the rapid development of pneumonia, which was evidenced by cough and many moist rales throughout both lungs. In the fatal cases there were physical signs of pneumonitis. It is believed that the pneumonitis was produced by the irritating properties of these substances, while the marked evidence of involvement of the central nervous system is due to the rapid and overwhelming absorption of the volatile fractions by the pulmonary circulation, this absorption being facilitated by the thin permeable alveolar wall. The symptoms of gasoline and kerosene poisoning are apparently produced by the toxic action of these substances on the central nervous system, principally the respiratory center motor areas and the vagus center. There is apparently no loss of oxygen carrying capacity of the blood. The prognosis may be said to be in direct ratio to the amount of the hydrocarbon that enters the lungs, and that if the patient survives several hours he recovers completely. There are practically no complications or sequale in this type of poisoning. The irritating effects in the lungs and the gastro-intestinal tract disappear completely in from forty-eight to seventy-two hours. Treatment consists of removing as much of the offending agent as possible by gastric lavage or emesis and laxatives. When cyanosis and other signs of respiratory embarrassment are present the use of oxygen (95 per cent) and carbon dioxide (5 per cent) has been of considerable benefit.

OFFICERS OF COUNTY SOCIETIES, 1934

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Woods	W. E. Simon, Alva	O. E. Templin, Alva
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NOTE—Corrections and additions to the above list will be cheerfully accepted